REPUBLIC OF THE CONGO

(formerly the Belgian Congo)

• A Study of Health Problems and Resources •

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

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FOREWORD

The publication of this study has been prompted by the current broad interest in all aspects of African life and the particular concern of many officials and others with the problems of the area which was until lately the Belgian Congo. It is hoped that the study will be helpful to those dealing actively with African matters and with the Congo. It is hoped also that it will be of value to students of the African scene by bringing together in an orderly fashion a wealth of information scattered throughout a wide variety of sources.

The study, which is a compilation of information readily available from sources identified in the bibliography, was made in the course of the regular work of the Division of International Health of the Public Health Service. An attempt has been made to organize this information in such a way as to present a coherent picture of the health situation of the Congo and to make detailed information concerning specific aspects of health more readily accessible to the user. Although the sources have been subjected to a reasonable degree of selection and evaluation, no attempt has been made to confirm the validity of the information through field investigation. The information presented is, therefore, only as reliable as the identified sources from which it has been obtained and is only as up to date as those sources permit it to be. It is believed, however, that this compilation does constitute a useful body of organized information on a subject of great current interest and concern.

This study was prepared prior to the events arising out of the attainment of independence by the Congo on June 30, 1960. The introductory paragraph of Chapter I has been modified in light of these developments but the body of the study has not been changed and reference to the "Belgian Congo" has been retained throughout. This is quite proper since the information in the report concerns the period in which the area was indeed the Belgian Congo.

The study was compiled in large part by Mrs. Jane H. Priest, of the Division of International Health.

H. van Zile Hyde, Chief
Division of International Health

October 1960

THE REPUBLIC OF THE CONGO

SUMMARY

The Republic of the Congo (formerly the Belgian Congo), which gained its independence June 30, 1960, lies almost entirely in equatorial Africa. This territory, with a population of 13,284,340 (1958), has an area of 904,991 square miles.

Health standards and living conditions vary markedly in different sections of the Congo and among peoples in different stages of cultural progress. Water supplies are derived from rivers, lakes, and streams, and although treated municipal supplies are available in the larger towns and cities, rural supplies are usually unprotected, and consequently, polluted. The European communities use septic tanks, but facilities for sewage disposal away from urban centers are generally primitive. Hygienic controls of food supplies are enforced in urban areas, while low levels of sanitation are a natural consequence of rural living.

Health and medical services are administered by the Direction Generale des Services Medicaux in close cooperation with a variety of semi-official and non-governmental organizations, missions, and large industrial concerns. Medical care in hospitals and dispensaries is free to all Africans legally entitled to it. In January 1959, there were 127 hospitals for Europeans and 431 hospitals for Congolese in the Colony, as well as 2,483 dispensaries scattered throughout the country, providing a total of 86,599 beds or about 1 bed for every 16,000 inhabitants.

The government spent $33,962,000 during 1958 for medical care, hospital construction, and the provision of medical subsidies for various philanthropic organizations. Annual expenditure for medical care was approximately $1.80 per capita.

The number of qualified European physicians in the Congo has increased almost 70 percent since 1948, although there are not, as yet, any fully trained African physicians practicing in the Congo. However, some 8,385 medical and paramedical personnel were working in the Congo in early 1959, of which 67 percent were Congolese. The Colony now maintains two medical schools with curricula requirements equivalent to those in Belgium, and the first medical diplomas are to be awarded in 1961. At present some 30 to 35 African students are enrolled. There are, in addition, 134 other governmental and non-governmental schools training Congolese for various subprofessional public health positions.

The principal efforts of the health services are directed toward the detection, surveillance, and treatment of the main endemic diseases--malaria, sleeping sickness, leprosy, and tuberculosis--and the elimination of such social problems as alcoholism and venereal disease. Reduction in malaria incidence has been obtained by mass spraying of huts and terrain in certain areas, by vector eradication, and by larvacidal campaigns. Mass campaigns of tuberculin testing and radiography in urban and rural areas have revealed some 96,000 cases of

pulmonary tuberculosis in a population of approximately 13 million, and a tuberculosis morbidity rate of about 8 per thousand. Systematic case finding and treatment of leprosy cases is continuing; during 1958, approximately 2 percent of the total population was treated for leprosy. The prevalence of smallpox has been considerably reduced by consistent vaccination and revaccination, although epidemics of smallpox, meningitis, and pneumonia occur. An epidemic of jungle yellow fever, the first in several decades, was reported in 1958 from Orientale and Equateur Provinces. Intestinal and skin infections are common. Avitaminosis, beriberi, endemic goiter, and other deficiency diseases are also present.

Detailed morbidity and mortality data are unavailable as yet, due to the difficulties inherent in their collection throughout the vast area. During 1958, 2,350,941 Congolese or 17 percent of the population reported illnesses and 525,223 were hospitalized. Of those who were ill, 12,640 or 0.53 percent died. However, the Congolese mortality rate was estimated, as a result of a limited demographic survey in 1951, to be 22.88 per 1,000 persons. An earlier rate, for the City of Leopoldville only, was reported to be 16.17 per 1,000 (1947). Other partial estimates made during 1951 include: birth rate - 30.9 per 1,000 inhabitants, and infant mortality 102.5 per 1,000 live births.

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GLOSSARY

BAEF - Belgian American Educational Foundation, a constituent organization of IRSAC in the United States.

BCK Railway - Compagnie de Chemin de Fer du Bas-Congo au Katanga (Katanga Bas-Congo Railway).

BECEKA MANGANESE - A local manganese mining company.

BIS - Inter-African Bureau for Soils and Rural Economics.

BPITT - Bureau Permanent Interafrician de la Tsetse et de Trypanosomiase (Permanent Inter-African Bureau for Tsetse and Trypanosomiasis).

CCTA - Commission de Cooperation Technique en Afrique au Sud du Sahara (Commission for Technical Cooperation in Africa South of the Sahara).

CEMUBAC - Centre Medicale de l'Universite de Bruxelles au Congo Belge (Congo Medical Center of the University of Brussels).

CIMENKAT - Cimeteries du Katanga (Katanga Cement Factories).

CSA - Conseil Scientifique pour l'Afrique au Sud du Sahara (The Scientific Council for Africa South of the Sahara).

FBI - Fonds de Bien-Etre Indigene (Native Welfare Fund).

FOREAMI - Fonds Reine Elisabeth pour l'Assistance Medicale aux Indigenes (Queen Elisabeth Fund for Medical Assistance of Congolese).

FORESCOM - Societe Forest et Commerce du Congo (Forest and Commerce Society of the Congo).

FORMINIERE - Societe Internationale Forestiere and Miniere du Congo (International Society of Forestry and Mining of the Congo).

FORMULAC - Fondation Medicale de l'Universite de Louvain au Congo (Medical Foundation of Louvain University).

GEOMINES - Compagnie Geologique et Miniere des Ingenieurs et Industriels Belges (Geologic and Mining Company of Belgian Engineers and Manufacturers).

HCB - Huileries du Congo Belge (Oil Companies of the Belgian Congo).

ILI - Inter-African Bureau of Epizootic Diseases.

INEAC - Institute Nationale pour l'Etude Agronomique du Congo Belge (National Institute for the Agronomic Study of the Belgian Congo).

IRSAC - Institute de Recherche Scientifique en Afrique Centrale (Institute for Scientific Research in Central Africa).

Kilo-Moto - Societe de Mines d'Or de Kilo-Moto (Society of Gold Mines of Kilo-Moto).

MAE - Mission Anti-Erosive (Anti-erosive Mission).

OCA - The African Housing Authority.

OTRACO - Office d'Exploitation des Transports Coloniaux (Office of Colonial Transportation).

REGIDESO - The Belgian Congo and Ruanda-Urundi Electricity and Water Supply Undertaking.

SCAM - Societe du Colonis Agriculture du Mayumbe (Society of the Agricultural Colonies of Mayumbe).

SECLA - Service d'Etude et de Coordination de la Lutte Antipaludique au Congo Belge et au Ruanda-Urundi (Service for the Study and the Coordination of Malaria Control in the Belgian Congo and Ruanda-Urundi).

SERAM - Section d'Etudes et de Recherches Antimalariennes (Section for Antimalaria Study and Research).

UMHK - Union Miniere du Haut Katanga (Union Mining Company of Katanga).

UNICEF - United Nations Children's Fund.

Utexleo - Usines Textiles du Leopoldville (Textile Mills of Leopoldville).

WHO - World Health Organization.

Chapter I

THE COUNTRY

Historical Perspective

The Republic of the Congo (formerly the Belgian Congo), which gained its independence June 30, 1960, lies almost entirely in equatorial Africa. This territory, with a population of 13,284,340* (1958), was until very recently a kind of paternalistic autocracy, governed by about one million Europeans, 80 percent of whom were Belgian. POPULATION

The former Belgian Congo was a completely separate entity from Belgium proper, with unrestricted executive and legislative powers. The area was administered by a Governor-General responsible to the Belgian cabinet minister for the colonies, and all its expenditures were financed from its own resources. During the time of its exploration by H. M. Stanley, the noted English explorer, under the auspices of King Leopold II of Belgium, it was known as the Congo Free State, and it remained essentially the King's personal property until 1908, when it became a Belgian Colony. Its major political, social, and economic progress has been achieved within the last 50 years. (6, 5, 7, 8) ADMINISTRATION

In 1950, with a view toward improving the welfare of the territory as a whole, the Congo Government inaugurated a 10-year development plan (Plan Decennal Congo Belge), which called for an expenditure of approximately $500 million by government and publicly owned enterprises for transport, communications, electric power and water services, and the improvement of native agriculture, public health, and 10-YEAR DEVELOPMENT PLAN

*Although official vital statistics are now available on both the European and Congolese populations, demographic data pertaining to the indigenous inhabitants are still incomplete and unreliable, except in limited areas where work has been carried on over a period of years by FOREAMI (Fonds Reine Elisabeth pour l'Assistance Medicale aux Indigenes) or by certain mission groups. Theoretically, registers are maintained at the headquarters of all administrative districts for census purposes, but actually the difficulties inherent in maintaining such records often result in inaccurate figures. Further, most territories have no comprehensive system for registration of births and deaths, and where registration is practiced, the areas change from year to year, or registration is incomplete, so that in general, official data seriously underestimate actual rates, and even crude death rates are difficult to obtain. Consequently, apparent trends in African morbidity and mortality need to be studied with considerable caution. (1, 2, 3, 4, 5)

education. Of this amount, some 20 percent ($100 million) was scheduled for urban housing, health, and water supply projects. The execution of the plan has proceeded normally, and many of its original provisions have already been surpassed.

PUBLIC HEALTH EXPENDITURES

Public health expenditures have grown from $9.2 million in 1950 to $24.2 million in 1957, an increase of approximately 150 percent since the initiation of the 10-year Plan. Government expenditures for public health alone over the 10-year period 1947 to 1957 have totaled approximately $155 million, as follows:

Year	(In millions of dollars)	Year	(In millions of dollars)
1947	3.36	1953	17.2
1948	8.58	1954	18.28
1949	7.76	1955	19.52
1950	9.20	1956	22.0
1951	11.22	1957	24.18
1952	13.36		

SEMI-GOVERNMENTAL AGENCIES

A number of semi-governmental agencies in the Congo have participated in the 10-year Plan. These include: OTRACO, the Colonial Transport Office (for rail and water transport); REGIDESO, the Electricity and Water Supply Undertaking (for the support of water and electricity in urban areas); FBI, the Native Welfare Fund (for medical programs, education, and water and electricity supply in rural areas); INEAC, the National Institute for Agronomical Studies in the Belgian Congo; IRSAC, the Institute for Scientific Research in Central Africa; and OCA, the African Housing Authority. (8, 9, 10, 11, 12, 2, 13, 14, 5, 15, 16, 17)

Geography

AREA

The Congo has an area of 904,991 square miles, or approximately the same area as the United States east of the Mississippi River. It is completely surrounded by land except for a narrow 25-mile strip of coastline where the Congo River empties into the Atlantic Ocean. The greater part of the country falls within the Congo River Basin, and in many respects the two are synonymous. The entire central region is a depressed plateau which slopes upward from an elevation of about 1,100 feet at Stanley Pool (near Leopoldville) to about 1,700 feet where it merges with the surrounding highlands. The basin is almost completely sealed, with the narrow gash across the Crystal Mountains as the only outlet. The alluvial plains of the Middle Congo are among the most fertile in Africa, but they are subject to seasonal flooding and are superlative breeders of the tsetse fly and the mosquito. The equatorial forests, which cover the northern half of the country, are as lush as any in the world, but until recently have served principally to impede the farmer in search of additional acreage. The southern half of the basin is principally wooded savannah

TOPOGRAPHY

and grassland, with some arid highland in the uplands. In the southwest, the basin is limited by the northern escarpment of the Angolan plateau, and in the southeast by the rugged highlands of the Katanga region, ranging from 4,000 to 6,000 feet, and forming a prolongation of the great South African plateau. The eastern border is also edged by ranges averaging 6,000 to 8,000 feet in height, which form the western edge of the Eastern Rift Valley. Within this valley lie Lakes Tanganyika, Edward, Albert and Kivu, the latter being the only one completely within Belgian territory. Between Lakes Edward and Albert lies the Ruwenzori range, with volcanic peaks rising to over 16,000 feet. The northwestern rim of the basin is defined by a stretch of plateau country with an average altitude of 3,000 to 4,000 feet, which forms a segment of the Congo-Nile divide. The entire area is drained by the Congo River and its tributaries, principally the Ubangi and the Kasai Rivers, the main arteries of transportation in the area. The Congo, which rises in Lake Tanganyika, flows for over 3,000 miles to the Atlantic Ocean, the only river in the world to loop the equator. (1, 8, 10)

CLIMATE

The central portion of the Congo Basin lies within the equatorial rain belt, which has no true dry season, although peak precipitation occurs from March to May and from October to December, totaling 60 to 80 inches a year. Temperatures are uniformly high (75° to 80° F.) and the daily variation usually does not exceed 10° or 15°, while the seasonal variation is only 3° to 5° F. Although individual days are not excessively hot, the cumulative effect of 8 months of such high temperatures, combined with 95 to 99 percent humidity, is extremely enervating, particularly to Westerners. The climate is not healthful, and tropical diseases are prevalent among the Congolese. In the lower Congo and on the Katanga plateau, the climate is wet and hot from October to May, and marked by violent wind and thunderstorms alternating with bright sunlight. The yearly mean temperature is about 68° F., and the annual rainfall ranges from 35 to 55 inches. A period of relative dryness occurs from May or June to the end of September, when the skies are overcast and the weather is relatively cool and comfortable, although the general effect of the dry season is depressing. (8, 18, 19)

Economy

AGRICULTURE

Approximately 84 percent of the Congolese are estimated to be engaged in subsistence agriculture. Under tribal conditions the natives engage in the shifting cultivation of food crops by primitive methods, usually maize, cassava, plantains, or peanuts. In 1953, in an attempt to promote permanent agriculture, as opposed to shifting native cultivation, the Belgian Congo Government inaugurated a settlement system for African agricultural communities called paysannats indigenes, with emphasis on crops that yield a high cash return to the farmer and so enable him to live better and buy more. Once he has

enrolled in a paysannat, the farmer is under orders; he is told what to plant, where, and in what rotation, in order to safeguard the fertility of the soil and to improve its productiveness. Cash crops such as cotton, coffee, and palm oil produced under this system are purchased under various government schemes, while the food crops are retained by the farmer. Under this program, the annual income of the Congolese farmer has increased over twenty-fold, from about $5 in the 1930's to $240 in 1954. There were approximately 140,000 such plots under cultivation at the end of 1953. Experimental and breeding centers and producers' and marketing cooperatives have been established in areas where these programs operate, and the organization of these small farm schemes is regarded as a starting point for other fundamental improvements, such as dispensaries, schools, and potable water supplies. (7, 12, 8)

LIVESTOCK

Livestock is kept throughout the region, but its range is interrupted by areas of tsetse fly infestation and of humid tropical forests. There is a sharp distinction between the highly developed European stock farming and the animal husbandry of the African population, for the European-owned livestock provides a disproportionately large part of the output of meat and livestock products. Over much of the Belgian Congo, cattle are regarded as a form of wealth and social status which give the cattle owner rights over other persons, who are thereby obligated to support his interests in the system of mutual obligations incorporated in the Congolese social system. This system is discussed in more detail in Chapter II.

NATIONAL PRODUCT PER CAPITA

A recent UN estimate indicated that in 1952-1954 the per capita national product of the Belgian Congo averaged $70, compared to $60 in Kenya, $50 in Uganda, and $100 in the Federation of Rhodesia and Nyasaland. The increase in gross national product from 1950 to 1954 was about 63 percent; of this increase two-thirds resulted from an increase in production and one-third from rising prices.

INCOME AND COST OF LIVING

The annual per capita income in the Congo increased from approximately $51 in 1950 to $74 in 1954. The cost of living in the Belgian Congo increased only about 20 percent from 1948 to 1956, compared with over 30 percent in Ghana, 40 percent in the Federation of Rhodesia and Nyasaland and the Union of South Africa, 50 percent in the British East Africa territories, nearly 80 percent in French West Africa, and about 140 percent in French Equatorial Africa. (12, 20)

Because the Congo is rich in minerals, it attracts big mining concerns, and these provide homes and community services for their workers to assure an adequate supply of healthy and productive laborers. For example, a typical mining center of Union Miniere, one of the large mining companies operating in the Congo, contains well-built houses supplied with electricity and water, a modern well-equipped hospital, a welfare center which provides maternal and child

health and personal counselling services, a primary school, a post-primary trade school, a sports stadium, a church, a social center, and a large central store to which the women go for weekly rations. In order to protect Congolese who have been attracted to the towns from their homes in the rural areas, the government requires all white persons employing Congolese to provide housing, food, clothing, and medical care for them.

LABOR FORCE

Increasing numbers of Congolese swell the paid labor force. During 1954, some 1,146,284 Congolese were employed, 23 percent in agriculture, 15 percent in mining, 11 percent in building, and 9 percent in industry, compared to approximately half that number 10 years ago. In late 1958, however, native unemployment was increasing in Leopoldville. Of approximately 100,000 African workers in the city, over 22 percent were unemployed, compared to 16 percent in June of that year. This does not include the unsettled and jobless Africans who come into the city from the hinterland and are not legally registered inhabitants. A similar pattern of increasing joblessness was reported from Leopoldville Province. In Stanleyville, 9 percent of the registered labor forces were unemployed, in Elisabethville, 19 percent. Resettlement and repatriation programs instituted prior to 1958 in an effort to ameliorate the situation appear to have been too limited to be effective. (1, 21, 8, 22)

TRANSPORT

Although it has received top priority in postwar development programs, transport is still a crucial problem in the Congo, due to the territory's vast area and varied geography. Natural deep-water harbors are rare, and navigable stretches of river are separated by frequent rapids. The main gateways to the Congo are the initial 90-mile portion of the Congo River, which is navigable by sea-going ships, and the Matadi-Leopoldville railway, which bypasses the Livingston Rapids, where the river drops 852 feet in 220 miles. Within the Congo Basin, the mighty Congo and its two chief tributaries, the Ubangi and the Kasai, provide some 7,000 miles of natural highways and form what is probably the largest undeveloped source of hydroelectric power in the world. From Stanley Pool at Leopoldville, river boats can navigate over 1,000 miles into the interior to Stanleyville, where the flow is again interrupted by Stanley Falls. The Kasai River is navigable for 526 miles to Port Franqui, and beyond to Wessman Falls, while the Ubangi is navigable for 700 miles up river from Leopoldville. The Congo has only about 3,000 miles of railroads, supplemented by some 20,000 miles of main highways and about 54,000 miles of local roads. In general, both the railways and highways have been located so as to complement and supplement the navigable river system. Animal transport is also used, but is limited primarily by the prevalence of the tsetse fly. Head-loading remains an important means of transport, particularly of agriculture products. (1, 7, 19, 12)

RIVERS

RAILROADS

COMMUNICATIONS

Communication is another problem in the Congo, although the number of official telegraph stations has almost doubled in recent years, for example from 100 in 1951 to 197 in 1955. The situation has been substantially improved by the use of the airplane, however. Sabena Airlines, which links the major cities of the Colony, flew 7.35 million air miles in 1955, compared to only 1.5 million in 1948.

AIR SERVICES

Nine of ten different international air services connect Leopoldville with neighboring areas in Africa and Europe. (7, 19)

Development of electric power sources has just begun in the Congo. A long-term water power development plan was approved in November 1957; the first stage, to be developed at Inga by 1965, is to produce an estimated 1,500,000 kilowatts. The ultimate capacity is planned to total 25,000,000 kilowatts, since the Congo flow at this point on the Inga plateau measures nearly 1 million cubic feet per second. (6)

Chapter II

THE PEOPLE

Composition, Distribution, and Growth

POPULATION

On January 1, 1959, the population of the Belgian Congo was 13,658,185, of which slightly less than 1 percent were non-indigenous white persons. The white population is predominantly Belgian; other Europeans include Portuguese, British, French, Italian, Greek, Swiss, and Dutch, most of whom are business men. There are also some 1,700 Americans distributed throughout the Congo, of whom 90 percent are missionaries. In Leopoldville, the capital, the white population totals some 20,000, of which about 100 are British and 80 are American; approximately 350,000 Congolese live in adjoining native cities. (18, 5, 23)

MAJOR CITIES

Besides Leopoldville, the major cities are Elisabethville, the nucleus of the Katanga mining area, with a native population of 171,447, and Jadotville, a Katanga mining center, with a Congolese population of 73,605. Other large cities are Stanleyville, in the Kivu area, and Matadi, an important port on the Congo estuary. In all towns and cities the European and Congolese sections are sharply defined. (1, 5)

ETHNIC GROUPS

Congolese are primarily of Bantu origin, admixed with pygmy, Sudanic, and Nilotic elements. The Bantu are predominantly Negro, but the Hamitic influence is seen in varying degree in the exceptional height, wavy hair, and narrow nose and face of many Congolese. They include the Bakongo and the Yombe of the coastal corridor, the Bangala, the Ababua and the Mongo of the equatorial forest, and the Balunda, the Baluda and the Bushongo of the savannah areas. The Bantu are primarily agriculturalists, living in straggling villages, often of great size. Several tribes of Nilotic Negroes are located around Lake Albert and the Semliki River. Sudanic Negroes are found in the extreme north, the most important tribes being the Banda and the Bwaka, near the bend of the Ubangi River in the northwest, and the Azande, in the vicinity of the Uele River in the northeast. The pygmies or batwa of the equatorial forest, the original inhabitants of the area, are said to be the shortest people in the world. Their skin is brown and covered with light downy hair, and their noses are broad and flat. They live in isolated groups, maintaining a semi-nomadic existence, and do not mix with their Bantu neighbors. Pygmies are found principally in the forest of the Ituri, the Tshuapa and the Kivu regions and near Lake Tanganyika and the Luapala River. Many still depend upon roots, fruits, and small animals for food, though some practice some form of agriculture. (24, 19, 1)

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LANGUAGE

The three principal languages are Lingala, spoken in the Congo River area from Leopoldville to Stanleyville; Kikongo, used in the Bas-Congo and Kwango Districts; and Swahili, employed extensively in the east and southeast.

RELIGION

The indigenous tribes were originally pagan, but Roman Catholic and Protestant missionaries have been active in the area for many years, with the result that approximately one-quarter of the inhabitants have been converted to Christianity. Various tribes in the north, including the Arabises of mixed Negro and Arab descent, are Moslem. (10, 1)

POPULATION DENSITY

The Congo, with an estimated 18 persons per square mile (1956), compared to 52 for the world as a whole, ranks among the least densely populated countries in the world. This fact alone is deceiving, however, for the Congo population is distributed very unevenly over the territory. A study of demographic densities in the Congo indicates that areas of low-density population (i.e., 1 person about every 3 square miles) cover only 55 percent of the area, principally the greater part of Katanga Province, the territories situated along the second parallel South between Lomela and Bolobo, and territories in the extreme north of the Congo. These low-density areas contain only 19 percent of the total population. Areas of medium density (i.e., ranging from 4 persons to less than 1 person per square mile) are located in the lowest part of the Central Basin and contain about 13 percent of the total land area and 10 percent of the population. Comparatively densely populated regions (i.e., from 4 to 8 persons per square mile) cover 30 percent of the Congo area (including the territory lying along the third parallel North, the mountains of the East, and the Lower-Congo, Katanga and Kasai Districts) and contain approximately 70 percent of the population, with the greatest density being in the mountain areas. In addition, an ever-increasing native population is congregating around the towns and European settlements, in the so-called extra-tribal centers, which form a succession of nuclei of high-density population. In 1938, these centers contained only about 8 percent of the total Congolese population, but by 1958 this had increased to 23 percent, or over 3 million persons. Of the Congolese population in each province, the following percentages were living in extra-tribal centers in 1958: Leopoldville, 28 percent; Equateur, 22 percent; Orientale, 23 percent; Kivu, 19 percent; Katanga, 36 percent; and Kasai, 12 percent. (4, 9, 13, 14, 5)

POPULATION GROWTH

The total population of the Belgian Congo is increasing slowly but steadily with a 23 percent increase over the 20-year period 1937 to 1957. Such growth is rapid compared to that of European countries, and compares favorably with some African countries while it lags behind others. The amount of growth has varied in different provinces. In Leopoldville Province, for example, it increased 36 percent during the period; in Kivu Province, 40 percent; in Equateur Province, only 6 percent.

The distribution of Congolese and non-Congolese inhabitants (usually termed Europeans) by province in early 1958 was as follows:

Province	Total	African	Europeans
Leopoldville	3,224,964	3,189,286	35,687
Equateur	1,808,391	1,801,632	6,759
Orientale	2,491,830	2,474,633	17,197
Kivu	2,276,537	2,261,822	14,715
Katanga	1,688,822	1,654,176	34,646
Kasai	2,167,632	2,158,633	8,999
Total	13,658,176	13,540,182	118,003

POPULATION DISTRIBUTION

(5)

The over-all crude mortality rate decreased from 26.2 per 1,000 in 1937 to 21.6 in 1953; however, mortality rates reported in 1958 from the 3 cities of the Congo were considerably lower than the national average. These were: Leopoldville, 8.3; Elisabethville, 6.1; and Jadotville, 10.7. The drop in the over-all infant mortality rate has been even more impressive, from 165.8 per 1,000 live births in 1942 to 102.5 in 1951. Infant mortality rates reported from the cities in 1958 were considerably lower, for example, 74.6 per 1,000 for Leopoldville and 54 per 1,000 for Elisabethville. (3, 4, 5)

MORTALITY RATES

The Congolese birth rate has been estimated to be about 30 per 1,000, but it varies widely from tribe to tribe and from area to area. It ranges from 45 per 1,000 in the Lower Congo and near Kivu in the north to below 20 per 1,000 in the Uele and Tshuapa territories. Birth rates in the cities in January 1958 were 47.3 per 1,000 in Leopoldville, 53.5 in Elisabethville, and 52.9 in Jadotville. (3, 4, 5)

BIRTH RATE

In 1953, the rate of natural increase in the Belgian Congo was estimated to be 12.7 per 1,000, a considerable increase over its prewar average of 8.0. According to reports this increase is attributed to a general decrease in mortality rates--particularly infant mortality rates--resulting from improved medical care and public health measures, since the birth rate has changed very little during this period. (3, 4, 5)

NATURAL INCREASE

Problems of Cultural Change

At the present time, the inhabitants of the Congo, in common with most of the peoples in Africa, are undergoing a period of rapid change. Under the impact of advancing European culture, they are frequently exposed to stresses and strains with which they are poorly equipped to cope, and no phase of their lives remains unaffected. Their problem is two-fold: adjustment to the abandonment of their traditional social structure, and the need to catch up with an alien mode of life essentially fluid in character, and difficult enough for those born to it.

RURAL AFRICANS

As a consequence of the conflict of cultures in the Congo, a wide gulf has developed between the urban and the rural African. Most of those in the countryside dwell in primitive poverty, and many are ignorant and superstitious. In addition, the social organization of the primitive African is large, complex, and rigid, based on a wide extension of the family system, by means of which a high degree of individual security is achieved in spite of a naturally hazardous environment. The demands of this organization are rigid, requiring the observance of meticulous rules and restraints with regard to manners and behavior in all departments and stages of life. These unwritten rules are so well known that any infringement is regarded as having an unsocial motive, and eccentric, secretive, solitary, or outstandingly successful persons are suspect.

URBANIZED AFRICANS

By contrast to the rural Africans, urbanized Africans live in a freer society, less bound by tradition. Detribalized Congolese are becoming increasingly individualistic in their outlook. They live in comparatively well-built houses, wear Western clothes, and are learning the ways of a money economy, although their wages for the most part are meager compared with those paid to Europeans. As a natural consequence, therefore, the cities of the Congo exert an increasing attraction for Africans.

DETRIBALIZED AFRICANS

The cities offer a number of other inducements to the African, also. Poor as the city schools are by American standards, they are considerably better than those in the villages, and piped water at a muddy crossroads is a vast improvement over walking several miles daily carrying water in a gourd. There are also music, lights, and excitements in the city streets at night, and Africans of both sexes can have wages to spend as they choose. In emergencies, however, these detribalized Africans fall back instinctively on their traditional tribal teachings, and so find themselves in a state of constant mental conflict. The detribalized African is often torn between responsibilities toward his tribal group on which his ultimate survival depends when he becomes aged or infirm, and toward his present employer on whom his present livelihood or his professional status depends. For example, if he leaves his job to attend an important tribal function, such as the funeral of a relative, his employer may consider him irresponsible, and his livelihood is threatened; if he stays on the job and does not appear to discharge his kinfolk obligations, his tribal relationships are damaged and his ultimate social and economic security is endangered. (10, 25, 26, 27, 24)

Some of the most urgent problems in the Colony center around the adaptation of the evolues--the better educated and more prosperous Congolese--into the predominating European cultural pattern. In 1948, to lessen their discontent and to distinguish their position from that of the more primitive Africans, an ordinance was passed awarding "cards of civic merit" to Congolese who were 21 years of age, not polygamous, of good conduct and habits, and able to read, write,

and calculate. Exceptions were made for native notables, qualified artisans, and certain older workers. Those who carried this card obtained the right to be judged by tribunals presided over by Europeans, and had other special privileges not accorded to the general population. By 1958, an estimated 1,000 Congolese had obtained this card. Since 1952, the immatricules--those who have shown by their character and way of life, the desire and ability to enjoy the rights and fulfill the duties of a more civilized culture--have also benefited from certain rights and judicial procedures formerly reserved to Europeans only. Increasing numbers of evolues and immatricules crowd the extra-tribal population centers on the fringes of the larger towns and villages, creating critical housing shortages and concurrent health and sanitation problems. (19)

Attitudes, Beliefs, and Customs

PERSONALITY FACTORS

J. C. Carothers, in his study of African ethnopsychiatry, attributes the following characteristics to the "typical African": cheerfulness, self-confidence, stoicism, sociability, loyalty, intuition, an excellent memory, a large vocabulary, an aptitude for music and the dance, a disinclination to bear grudges. He has also been described as conventional; highly dependent on physical and emotional stimulation; lacking in spontaneity, foresight, tenacity, judgment, and humility; not given to sound abstraction and logic, and predisposed to fantasy and fabrication. (24)

MEDICAL BELIEFS

Many Africans of the present day resemble Europeans of previous centuries in their regard of the heart as the center of life and the home of the soul. Africans generally have no knowledge of the circulation of the blood, and consider the heart to be motionless somewhere in the region of the chest and upper abdomen. They believe this whole area is a critical one and any sensations therein, such as palpitations which can be interpreted as a movement of the heart, are felt to be especially dangerous, for the soul may be moving in readiness to leave the body; thus life itself is in danger. (24)

MARRIAGE CUSTOMS

The African attitude toward marriage is rather different from that which prevails among Europeans, since in Africa marriage is based more frankly on motives of economy and succession. Polygamy is the rule, since prestige attaches to being a wife of a man with many wives. Barrenness is the final calamity in the life of an African woman, and is often considered grounds for divorce. Although African societies are primarily patrilineal and patrilocal, an African woman does not lose contact with her family when she marries, and the children are frequently looked after by the relatives. There is considerable specialization of labor between the sexes; the men are responsible for the bush clearing, cattle herding (if cattle are kept), hunting, and child care, while the women hoe the fields, collect firewood, and cook the food. (24)

Literacy and Education

LITERACY RATE

The level of literacy ranges from 10 to 47 percent despite the continuous increase of educational facilities. Public education for Congolese is free but not compulsory, and frequently the absentee rate is high due to illness, distance, or economic factors. Native education is provided by "national" and "foreign" missions (the former classification being acquired by a two-thirds representation of Belgians in the administration) and its expansion is fostered by the government through subsidies to approved schools. Schools are also provided by special agencies and by industrial enterprises. (Instruction is in the vernacular, except in post-primary school, where the use of French is compulsory.)

The Congolese education is directed toward provisions of fundamental education for the masses, reduction of illiteracy among adults, and the acquisition of practical skills by individuals. However, a large percentage of the children are enrolled in small non-subsidized mission schools which provide only the most rudimentary instruction, even in areas where education has penetrated. In many tribes, attendance is limited only to boys. Many children leave school after only 3 or 4 years, and one of the consequences of this short and unsatisfactory education is that the child goes into his world without sufficient training to cope with the new life, but with enough to bring dissatisfaction with tribal conditions.

NUMBER OF SCHOOLS

In 1956, there were 26,535 schools in the Congo for indigenous inhabitants, including 2 for higher education, University of Louvanium at Leopoldville and the University of the Congo at Elisabethville. These schools were attended by some 1,282,646 pupils. By early 1958, some 264 African students were enrolled at the Universities. (28, 25, 7, 1, 29)

Housing

RURAL HOUSING

In both urban and rural areas a large proportion of the population is showing a growing desire for better housing. Marked differences exist between the well-constructed, modernized homes in Leopoldville, Elisabethville, and other cities, and the primitive dwellings in the tribal areas which house from 75 to 80 percent of the population. The pygmies of the forest live in simple villages formed of rows of square or rectangular thatch and pole huts, roofed in thatch which overhangs to form a veranda. Living conditions are very primitive. The tribes of the savannah live in villages of 100 to 200 huts grouped around a central space in which the chief's houses and communal buildings are located. Some huts are small beehivelike structures of grass, while others are rectangular, with ornamented clay walls and thatch roofs. Most of the huts are dark and poorly ventilated, constructed principally to provide protection at night

and during the rains. The floors are mud, frequently polluted by both children and animals. Europeans use concrete, stucco, and brick in the construction of homes and other buildings. Rows of homes in the native sections of the larger cities are of a variety of materials ranging from woven palm, bamboo, and thatch for huts to cement or stucco for small houses. The authorities have set up semi-governmental bodies to promote better housing in both rural and urban areas. Projects to supply modern housing for the evolues, clerks, and skilled workers, have been undertaken in many parts of the country. During 1956, the Bureau of African Housing, established in 1952, built 2,740 dwellings, bringing the total number constructed under these auspices to 21,714.

URBAN HOUSING

At the same time, a slightly different procedure has been attempted at Elisabethville where Congolese were invited to build their own houses with materials furnished on the best possible credit terms. This system permitted the construction of thousands of dwellings and temporarily solved the housing problem in the great City of Katanga. The total funds provided by Fonds d'avance, a government agency which makes loans to Congolese for building, improvement, or purchase of homes, amounted to slightly over $30 million during the same period, compared to $17 million for the preceding year. A new institution designed to advance small sums to Africans for housing, called Fonds du Roi, was established in May 1956, with a capital of $36 million. (1, 28, 7, 30, 31, 9)

Chapter III

HEALTH AND HEALTH-RELATED PROBLEMS

Incidence and Prevalence of Disease

The Belgian Congo, in common with many emerging African nations, has its full share of disease problems. Some of these diseases are peculiar to the tropics, such as sleeping sickness (trypanosomiasis) and blood fluke disease (schistosomiasis); others are common to the temperate zones as well, such as tuberculosis and venereal diseases. In view of the present state of economic development of this area, the vastness of its territory, the wide differences in living conditions and social development of its people, and a concomitant inadequate vital statistics service, it is not possible to obtain comprehensive and reliable morbidity and mortality data. In some instances, patients treated by missions or private organizations are not included in government reports; in others, diagnosis and reporting may be done by untrained or non-medical personnel. Available data, however, do provide certain criteria for evaluating the presence and, to some degree, the relative incidence and potentialities for spread, of the principal endemic and epidemic diseases. For convenience, the diseases discussed on the following pages are grouped in a modified version of the system used in the eighth edition of Maxcy's Rosenau's text Preventive Medicine and Public Health.

I. Contagious Diseases Spread Largely from the Mouth and Nose

SMALLPOX

The prevalence of SMALLPOX has been considerably reduced as a result of systematic vaccination and revaccination. In the Belgian Congo, the predominant clinical type of the disease appears to have been the mild variola minor type as evidenced by the fact that although 25,541 cases were reported from 1951 through 1957, there were only 750 deaths. Of the 1,943 cases of smallpox reported in 1957, only 255 (approximately 14 percent) were of the classical smallpox or variola major type, and these occurred almost exclusively among the Congolese population. By far the greatest number of cases of variola major (193) was reported from Kasai Province. From 1957 through 1959, 646 cases of variola major with 88 deaths were recorded: 256 cases (44 deaths) in 1957, 56 cases (6 deaths) in 1958, and 334 cases (36 deaths) in 1959. By contrast, the greater number of cases of variola minor or alastrim was reported from Equateur (583) and Katanga (341) Provinces, and the least (27) from Leopoldville Province. (32, 33, 34, 35, 13, 14, 5, 10, 1)

Extensive mass vaccination has been carried on throughout the Congo, with an average of 662,425 first vaccinations and 3,222,161 revaccinations given annually from 1952 through 1957, exclusive of

Europeans. Europeans average about 3,000 first vaccinations and 10,000 revaccinations annually. During 1958 a national total of 598,526 first vaccinations and 3,782,473 revaccinations was reported. Two of the major problems faced in this undertaking are the maintenance of the vaccine potency under tropical conditions, and the oppositions of certain tribes to the vaccinations process itself. Provincial laboratories not only prepare smallpox vaccine for use in the Belgian Congo but also undertake considerable research in connection with the disease. (1, 32, 33, 34, 13, 14, 5, 23)

MEASLES, WHOOPING COUGH, MUMPS, INFLUENZA

MEASLES, WHOOPING COUGH, MUMPS and INFLUENZA are endemic and sometimes epidemic. The number of reported cases of MEASLES has increased from 30,000 to 35,000 cases a year in the early 1950's to 59,851 in 1956, 54,194 in 1958, and a peak of 72,029 cases (379 deaths) in 1959. An average of 32,000 cases of WHOOPING COUGH with about 250 deaths has been recorded annually during 1958 and 1959. About 12,000 cases of MUMPS have been reported annually, with very few deaths. During 1958, 46,343 cases and 33 deaths from INFLUENZA were reported, and during 1959, 15,548 cases and 28 deaths. (1, 32, 33, 34, 13, 14, 5)

RESPIRATORY DISEASES

Respiratory infections are reported as responsible for a large proportion of the infant deaths. (1)

PNEUMONIA AND PNEUMOCOCCAL INFECTION

PNEUMONIA is prevalent, especially in the labor camps. Fatality rates in 1957 averaged 5.1 percent for the country as a whole, ranging from 3.4 percent in Equateur Province to 7.2 percent in Orientale and 7.0 percent in Kivu. The greatest number of cases of pneumonia (21,094) was reported from Katanga Province. Primary pneumococcus meningitis is not unusual.

DIPHTHERIA

DIPHTHERIA is comparatively rare, although occasional cases occur among both Europeans and Congolese. During 1958, 265 cases with 20 deaths were reported, and 210 cases with 19 deaths during 1959. (1, 32, 33, 34)

SCARLET FEVER

SCARLET FEVER is reported infrequently, but sporadic cases have been observed in both Congolese and Europeans. Dick test surveys have indicated that 93 percent of the children acquire an immunity by 2 years of age.

MENINGOCOCCIC MENINGITIS

Localized outbreaks of MENINGOCOCCIC MENINGITIS or cerebrospinal fever are common, particularly in Leopoldville and Kasai Provinces. An average of 575 cases has been reported each year among the Congolese for the period 1953 through 1959, with occasional cases among the Europeans. Fatality rates have ranged from 17 percent to 31 percent, those for 1958 and 1959 having been 22 percent and 21 percent, respectively. This is an appreciable decrease over fatality rates of 30 percent to 80 percent which were recorded some 10 years before; this decrease is attributable principally to the introduction

of therapy with the sulfa drugs. Strains of meningococci isolated in the Congo have been found to be immunologically distinct from those encountered in Europe. (1, 32, 33, 34, 13, 14, 5)

The exact prevalence of TUBERCULOSIS is not known, but large-scale tuberculosis surveys have been conducted in recent years in both urban and rural centers by means of tuberculin testing and mass radiography. The disease, originally largely urban, has penetrated extensively into rural areas, apparently brought there by sick workers leaving their jobs to return to their native villages. Some 6,601,109 persons were examined throughout the country during 1957 by mobile laboratories; of this total, 8,678 old, controlled cases and 6,660 new cases were encountered. In 1957, 996 deaths were reported. Radiologic examinations show that the average morbidity in the Congo is about 0.8 percent. The number of cases reported shows a gradual increase, from 13,437 cases in 1952 to 31,935 in 1957. During 1958, the greater numbers of cases treated were from Leopoldville Province (7,822), Kasai Province (4,210), and Equateur Province (3,174). On the average, 100 to 150 cases a year are reported in the European population. The incidence of new infection during 1958 was 0.019 percent. The over-all death rate from tuberculosis, however, has decreased markedly in the last 25 years, and the difference in death rates for the two sexes has become accentuated. TUBERCULOSIS

Measures for the control of tuberculosis have been carried on in Leopoldville and in certain mining areas for a number of years, but facilities for diagnosis and treatment are inadequate in all parts of the country. By the end of 1957, about 260,000 persons in the Leopoldville area had submitted to BCG vaccination. In January 1956, there were 18 tuberculosis treatment centers with a total of 997 beds. As an interim measure, the government has constructed tuberculosis annexes to the general hospitals, which are directed by phthisiologists, and also provides pilot organizations for the antituberculosis campaign.

Ordinarily in the Congo, once tuberculosis has been arrested, it is necessary to rely on ambulant treatment, especially in the urban centers, where the patient is carefully watched. The average period of hospitalization is 3 months in the cities and 1 year in the rural areas. In the latter instance, patients on the way to stabilization are usually placed in convalescent camps. The preemployment medical examination of all persons under 21 and the mandatory annual physical checkup required of all employed persons in this age group have also helped reduce the incidence of tuberculosis in adolescents. From 1948 to 1955 the incidence of tuberculosis among adolescents at work fell from 1.55 percent to 0.23 percent. (1, 13, 14, 5, 36, 10)

II. Contagious Diseases Spread Largely Through Fecal Discharges

CHOLERA has not been reported from the Congo. (1, 5, 40) CHOLERA

TYPHOID FEVER

TYPHOID FEVER is endemic in all parts of the Colony, especially along the major trade routes. Epidemics occur sporadically, usually in the dryer seasons when water supplies are low and the possibilities of water pollution are increased. The highest incidence in 1957, 1958, and 1959 was recorded from Leopoldville and Kivu Provinces. Typhoid fever appears more frequently than the PARATYPHOID FEVERS in those reports where the two entities are differentiated. From 1953 through 1957, a total of 5,872 cases and 305 deaths were reported; from 152 to 423 cases were reported annually among Europeans and from 715 to 1,122 among Congolese. In addition, 1,800 cases and 61 deaths were reported in 1958, and 1,528 cases and 75 deaths in 1959. Paratyphoid B and C have been encountered with almost equal frequency, but paratyphoid A appears to be irregular in distribution and has rarely been isolated by the laboratory in Leopoldville. Systematic immunization against typhoid and the paratyphoid fevers is enforced among government personnel and workers in the larger industries. Immunization is also employed in the event of a major outbreak. (1, 23, 32, 33, 34)

BACILLARY DYSENTERY

Outbreaks of BACILLARY DYSENTERY are common among both white and Congolese populations. During 1957, 1958, and 1959, the major number of cases were reported from Leopoldville, Kivu, and Orientale Provinces, in that order. Over the 5-year period from 1953 to 1957, an average of 1,000 European cases and 6,000 Congolese cases were reported annually, with a case fatality rate of approximately 0.2 percent for Europeans and 2.4 percent for Congolese. During 1958, 5,834 cases were reported of which 839 were among Europeans; there were 124 deaths, all among Congolese. Epidemics of bacillary dysentery caused by Shigella dysenteriae and S. paradysenteriae have occurred periodically, often threatening large communities. S. dysenteriae has been encountered chiefly in the eastern provinces. (1, 23, 32, 33, 34, 13, 14, 5)

AMEBIASIS

AMEBIC DYSENTERY is endemic throughout the Congo. Over the 5-year period 1953 through 1957, 158,883 cases were reported, 4,711 among Europeans and 154,172 among Congolese. During this period, the Congolese averaged slightly over 30,000 cases per year to the Europeans 950. Incidence is particularly high in Leopoldville, Kivu, and Orientale Provinces. The prevalence of flies, lack of sanitary facilities, and ignorance of the basic principles of hygiene are among factors that encourage the spread of this infection, especially among the Congolese. Amebic abscess of the liver has been reported infrequently. (1, 32, 33, 34, 13, 14, 5)

HOOKWORM DISEASE

HOOKWORM INFECTION (ANCYLOSTOMIASIS) is widespread, especially in Katanga and Kasai Provinces, which reported 78,187 and 79,937 cases respectively, in 1957. From 1952 through 1957, an average of 320,000 cases of ancylostomiasis was reported annually. Since the disease is typically mild, the recorded cases probably represent only a small proportion of the total incidence. Both Ancylostoma duodenale and

Necator americanus are encountered, although the latter usually predominates. Only about 300 European cases were reported each year. (1, 19, 13, 14, 5)

From 1952 to 1957, an average of 382,300 cases of infection with one or more intestinal helminths was reported annually from the Congolese population, and about 1,400 cases annually from the European population. In many regions 50 to 100 percent of the inhabitants harbor one or more species of intestinal worms. Ascariasis, trichuriasis and strongyloidiasis are common. Hymenolepis nana infection is reported occasionally. Of the animal parasites transmitted to man, Taenia saginata, the beef tapeworm, is widely distributed in the cattle-raising districts of the eastern highlands and infection by the pork tapeworm, T. solium, is occasionally reported. (1, 13, 14, 5)

OTHER INTESTINAL HELMINTH INFECTIONS

III. Contagious Diseases Spread by Genital Contact

VENEREAL DISEASES are prevalent in the Congo. Endemic foci exist primarily along the historical trade routes, and secondarily in the industrial centers and among the tribes of the interior. Some 244,983 cases of venereal disease were reported in 1957, of which 71.5 percent was attributed to gonorrhea and 27.4 percent to syphilis; lymphogranuloma venereum, chancroid, granuloma inguinale, and other venereal diseases accounted for the remainder. It is probable, however, that reported cases represent only a portion of the total incidence. Both syphilis and gonorrhea appear to adversely influence birth and infant mortality rates in many areas of the Congo.

From 1952 to 1957, an annual average of 71,954 cases of syphilis was reported among the Congolese, and 85 among the European population. Among the Congolese in 1957, most of the cases reported were from Equateur Province (24,062), followed by Orientale (15,996), and Leopoldville (12,169) Provinces. During 1958, 6,743,689 persons were examined throughout the country by means of mobile units; this survey found 22,088 old cases of syphilis now under control, and discovered 7,722 new cases. This represents an incidence of new infection of 0.11 percent. Some 319 deaths were attributed to syphilis during the year. From 1953 to 1957, an annual average of 146,834 cases of gonorrhea was reported among the Congolese, and 639 among Europeans.

VENEREAL DISEASES

Treatment for venereal diseases is provided in various hospitals and dispensaries throughout the Congo, and at special antivenereal disease centers operated by the Croix Rouge du Congo in Leopoldville, Matadi, Stanleyville, and Elisabethville. Control is difficult, however, since most natives discontinue attendance once acute symptoms have subsided. (1, 23, 13, 14, 5)

IV. Contagious Diseases Unclassified as to Principal Mode of Spread

POLIOMYELITIS AND COXSACKIE VIRUS INFECTION

POLIOMYELITIS was reported as endemic in the Congo in 1958 and an epidemic was reported in 1954-55. Examination of waste water in several towns failed to reveal any poliovirus although Coxsackie virus was found. Infections with enteroviruses appear to be rare before the age of 6 months, but Coxsackie virus has been found in Congolese children beyond that age with apparent decrease in infection by 6 years. Antibodies against all three types of polioviruses have been found in children over 6 years of age. As part of a concerted effort to control the disease, 244,596 persons of both sexes and all ages in the Congo and Ruanda-Urundi were given type I poliovirus (Chat strain) orally. (37, 38, 39)

INFECTIOUS HEPATITIS

Cases of INFECTIOUS HEPATITIS are reported each year from both Congolese and European populations. During 1959, 595 cases, with 17 deaths, were reported. (1, 23)

YAWS

YAWS is widely distributed and foci have been reported in Equateur Province, in the tropical areas of Kivu Province, and parts of Leopoldville and Orientale Provinces. Mass treatment has been carried on in many areas by provincial medical services and by various mission groups and philanthropic agencies. From 1951 through 1957, about 170,000 cases were reported each year throughout the Congo. (1)

LEPROSY

LEPROSY is widespread throughout the Congo, particularly in Orientale and Equateur Provinces, and in May 1958 was estimated to affect some 3 percent of the population. However, local specialists believe that the increase of leprosy has now been arrested as a consequence of the comprehensive treatment of the disease which was undertaken in 1953. A small decline in the number of reported cases has begun to be apparent. In 1957, 271,114 cases were reported as compared with 275,293 in 1956. During 1957, 4,266 new cases were located and 302 deaths were reported.

The lepromatus variety of leprosy accounts for about 10 percent of the Congo's leprosy cases. Advanced lepromatus cases, and those with serious but curable skin lesions, are segregated in state sanitoriums where there are resident European specialists. On January 1, 1959, 20,217 lepers were confined in some 111 leprosaria or agricultural villages maintained by the Congolese Medical Service, the Croix Rouge du Congo, or by missions in various parts of the country. The segregation units vary in size--from 20 to 1,500 patient capacity--and also in amount of medical supervision provided. Major centers, caring for about 1,000 patients each, are located at Yonda (Equateur), Paua (Orientale), Oicha (Kivu), and Dikungu (Kasai). Less advanced cases are assigned to regional treatment centers--general hospitals, either public or private, where a leprologist is available on a visiting basis. Where possible, handicrafts and normal work are encouraged, both for therapeutic purposes and as a form of social

rehabilitation. Individuals are not totally secluded, and may occasionally be visited by their families. Their dependents receive state assistance.

Tuberculoid cases, comprising between 80 and 90 percent of the total, are treated as outpatients at widely distributed public health dispensaries, located about 20 miles apart, or at private medical clinics. Further, travelling public health employees cover the remote areas, visiting the villages in their sectors once every two weeks. Ordinary tuberculoid cases are encouraged to remain in their villages, leading as normal a life as possible.

Both the sulfones and diphenyl thiourea are being given by the visiting health workers; persons who cannot tolerate the injections are sent to regional treatment centers. The cost per patient for sulfone treatment is 70 cents a year. Difficulties arise in achieving a permanent cure, however, for as soon as the skin lesions disappear, the Congolese tend to lose interest in treatment.

Interesting correlations between leprosy and humidity and between leprosy and BCG vaccination have been reported from the Congo. In the less humid areas over 1,500 feet, only 6 cases of leprosy are found per 1,000 persons, compared to a national average of 30 per 1,000; lepromatus cases, which comprise 10 percent of all leprosy cases as a national average, comprise only 3 percent of the cases in the most humid areas, and 33 percent of those occurring above 1,500 feet. The definitive cause or causes have not been determined. Conclusions drawn from BCG vaccination are less well established, since mass vaccination has been administered only in limited areas and for a brief period. However, where BCG vaccine has been administered, leprosy has declined about 50 percent. At the beginning of 1957, FOREAMI equipped four medical missions to study the influence of BCG vaccination on the progress of leprosy in Orientale, Kivu, and Kasai Provinces. The Croix Rouge du Congo maintains a special research laboratory at Pawa (Orientale Province).

A few cases of leprosy have been found among Europeans. (41, 42, 10, 43, 32, 33, 34, 44, 23)

TRACHOMA occurs sporadically among the Congolese. During the 6-year period 1952 through 1957, an average of 828 cases a year was reported. In 1956, 910 cases were treated and 843 in 1957. Of the 1957 cases 813 were reported from Katanga Province. (1, 13, 14, 5) TRACHOMA

V. Arthropod-borne Diseases

MALARIA is found in all parts of the Congo except at elevations of over 5,500 feet in the eastern highlands, where the anopheline vectors of malaria have not been found. The infection is hyperendemic in the lowland areas and frequently epidemic at the higher altitudes. MALARIA

It is transmitted throughout most of the year, in various sections of the country, with minor fluctuations due to greater or lesser rainfall. The incidence of malaria is highest at the end of the rains, when the stagnant water has not dried up and anopheline mosquitoes can breed more readily. Anopheline mosquitoes which transmit malaria in the Congo are discussed in more detail in the subsection of this chapter dealing with disease vectors.

The incidence of reported malaria cases has increased gradually from 297,630 cases (864 deaths) in 1952 to 945,110 cases (2,333 deaths) in 1958. About 5 percent of these cases were among Europeans. During 1958, the majority of cases was reported from Leopoldville Province (261,618), Katanga (140,869), Kasai (139,889), and Equateur Provinces (125,468). It is estimated that almost 100 percent of the native children in endemic regions acquire the infection before 10 years of age. The average index of infection for the Congo is believed to be 75 percent for children under 3 years and slightly under 50 percent for children 3 to 15 years of age. In the epidemic areas, all ages are affected. Extensive outbreaks of malaria have occurred in recent years among laborers recruited from upland regions which have been more or less free from the disease to work in industries in endemic areas. Black water fever is recorded sporadically in the white population but rarely among the Congolese. (1, 19, 13, 14, 5, 23)

The predominating species of malaria found in both European and Congolese populations is Plasmodium falciparum. P. malariae is common among Congolese children in endemic areas, but is rarely encountered among the European population. P. vivax and P. ovale are seen irregularly and less frequently. Sometimes two or three species are found in the same area. (1)

Antimalaria campaigns have been undertaken in many regions of the Congo during the past years, utilizing larvaciding, disinsectization of houses by residual spraying, aerial DDT dusting, and distribution of antimalarial drugs through hospitals, dispensaries, and nutrition centers. The principal organizations involved in this action are the Services Medicaux, the Mission de Desinsectization du Bas Congo, the Mission Medicale de la Suzizi and the Service d'Hygiene de la Cote. Since 1958, a Service for the coordination of malaria control in the Belgian Congo and Ruanda-Urundi (Service d'Etude et de Coordination de la lutte antipaludique au Congo belge et au Ruanda-Urundi - SECLA) has functioned under the Direction Generale des Services Medicaux. Its purposes are: 1) to determine the exact prevalence of malaria in these areas; 2) to undertake malaria research; 3) to coordinate the activities of all agencies interested in antimalarial work; and 4) to provide a clearing house for malaria information, operations and research activities. (1, 23)

YELLOW FEVER generally occurs sporadically throughout the Congo, but in 1958 an epidemic of yellow fever broke out for the first time in over 20 years. Sixty cases with 23 deaths were reported, all north of the equator. The epidemic was quickly controlled by measures that included mass vaccination, quarantine, and a large-scale disinsectization program. Origin of the epidemic apparently was the jungle yellow fever reservoir known to be present and first revealed in Africa by investigations conducted by the Yellow Fever Institute at Entebbe, Uganda, some years ago. (23, 45)

YELLOW FEVER

Evidence of endemicity among the Congolese population has been furnished by protection test surveys in representative areas throughout the country. The southern limit of the endemic zone is recognized as 10° S. latitude by the World Health Organization. Immunization against yellow fever is compulsory for all white residents in the Belgian Congo, both permanent and temporary. International Sanitary Regulations are enforced at all seaports and airports. (1, 46)

DENGUE, or breakbone fever, is endemic in the Congo. From 1952 through 1957, an average of 244 cases was reported annually among the Congolese and 118 among the European population.

DENGUE

Filarial infections have been reported from many parts of the country. The following figures are based on the Congolese portion of the population. (1, 5, 46)

FILARIASIS

Bancroft's FILARIASIS was reported in 1957 in 1,049 persons, most of them located in Kasai and Orientale Provinces. The filarial worm W. bancrofti is distributed irregularly although the mosquito vectors are widespread.

In 1957, 5,098 cases of ONCHOCERCIASIS were reported, mostly from Kasai and Orientale Provinces. Distribution of onchocerciasis appears to conform to the distribution of the black fly vector. Early limited surveys indicated that 80 to 85 percent of the inhabitants of some areas were infected.

Infection by Loa loa was found in 4,788 persons in 1957. LOIASIS was more common in the Provinces of Equateur and Leopoldville.

Numerous infections with non-pathogenic filarial worms were reported in 1957.

Infection by Dracunculus medinensis affected 265 individuals in 1957, most of them being reported from Kasai Province.

GUINEA WORM INFECTION

AFRICAN TRYPANOSOMIASIS, or sleeping sickness, is a disease of considerable importance in the Congo, being widespread and affecting both the health and the economic welfare of the people. Human trypanosomiasis in the Congo is caused by Trypanosoma gambiense, vectored

SLEEPING SICKNESS

by the tsetse fly, Glossina palpalis. (The habits of the tsetse fly are discussed in detail in the subsection of this chapter dealing with disease vectors.) Control programs have been aimed chiefly at the elimination of infection in the human reservoir, and surveys and mass treatment are effected through mobile units. In some areas, anti-tsetse fly measures are an accessory to the program. During the 7-year period from 1952 through 1958, the number of reported cases has gradually declined from 28,468 in 1952 to 7,639 at the end of 1958. Although endemic areas today are estimated to total about half of the country, the individual areas of endemicity are gradually being restricted in size. Foci of the disease are found principally in Equateur and Leopoldville Provinces, and in the area covered by FOREAMI. (1, 23, 13, 14, 5)

Despite the continuing efforts to eradicate sleeping sickness, the index of endemicity of the disease has become more or less stabilized in recent years, due perhaps in part to the development of strains resistant to the arsenical compounds formerly used in treatment. However, in early 1959, clear evidence of the decline of the disease was noted, resulting from sustained campaigns of chemoprophylaxis with pentamidine in endemic areas. Some 6,254,454 persons were examined for trypanosomiasis by travelling medical units during 1958. Of these, 5,321 were old, controlled cases, and 1,218 were new cases, representing an incidence of new infection of 0.019 percent. Three hundred and thirty-six deaths were reported.

Continuing research is being carried on for new and more effective methods of treatment and prophylaxis. Following the International Trypanosomiasis Conference in Brazzaville in 1948, a permanent Inter-African Bureau of Tsetse and Trypanosomiasis was created, with headquarters at the Institute de Medicine Tropicale Princesse Astrid in Leopoldville. The activities of this organization are discussed in some detail in the chapter on Health Resources. (1, 23, 5)

LEISHMANIASIS

The presence of CUTANEOUS LEISHMANIASIS has been suspected, but KALA-AZAR (visceral leishmaniasis) has not been reported. (1)

PLAGUE

SYLVATIC PLAGUE is enzootic in several foci located in two separate areas in the mountainous country flanking Lake Albert and Lake Edward on the west. Sporadic cases occur in scattered villages in the forest and bush country. Periods of lower incidence correspond to the drier times of the year and the first months of the long rainy season which follows the dry season of December and January. During the period from 1952 through 1958, an average of 28 human cases was reported each year, with an average case fatality rate of 60 percent. Of these cases, 163 (86 deaths) were reported from the Lake Albert area and 33 cases (32 deaths) from the Lake Edward area. Eight cases of human plague were reported in 1958. (13, 14, 5, 23, 47, 35, 1)

In the native villages, the semidomestic rats, Arvicanthus abyssinicus and Mastomys coucha ugandae, are the most frequent rodent reservoirs. The Alexandrine rat (Rattus alexandrinus) is an important reservoir in the Lake Edward area but is not found at the Lake Albert focus. R. kijabius has been found infected in some localities. Numerous wild rodents are potential accessory reservoirs, and these are discussed in the subsection of this chapter dealing with disease vectors and reservoirs. The rat flea (Xenopsylla brasiliensis) is the principal arthropod vector, but X. cheopis has also been implicated in the Lake Albert region.

A continuous control program is carried on by antiplague units in the government health service. Current antiplague measures include systematic disinsectization, intensive destruction of rodents, improvement of the hygiene of Congolese villages, systematic clearing of the vegetation around the villages, and repeated systematic immunization of the inhabitants of these areas with Girard's antiplague vaccine. During 1958, 17,102 immunizations were given in the Lake Albert area, and 376,442 in the Lake Edward area, by mobile teams from the plague research laboratories at Blukwa and Butembo. (1, 13, 14, 5, 23)

RELAPSING FEVER

RELAPSING FEVER cases reported in the Congo are primarily of the tick-borne type and are largely confined to the indigenous population. Of the 583 reported cases in 1957, 577 cases (5 deaths) were of the tick-borne type, 5 cases (no deaths) were of the louse-borne type, and only 1 case of the total was reported in a European. This compared to 1,168 cases reported in 1953, 3 of which were louse-borne, and 2 cases of the total in Europeans. (35, 13, 14, 5)

The mode of spread of the tick vector is not quite understood. "It is well known, however, that natives traveling from endemic to non-endemic areas carry ticks along with them so that they may be periodically bitten and thus not lose their immunity." Ticks may also be transported in blankets rolled up by travelers after a night spent in a tick-infested hut or campsite. (48)

LOUSE-BORNE TYPHUS

LOUSE-BORNE TYPHUS was diagnosed on the basis of clinical and serologic evidence in 1940, when an epidemic of 200 or more cases was reported in the Maniema district on the eastern border of the Congo. No cases were reported in 1958 and only one, from Leopoldville Province, in 1959. The disease is suspected of being endemic, however, in the Kivu region, as well as in Ruanda-Urundi. (1, 35, 33, 34)

MURINE TYPHUS

MURINE TYPHUS (flea-borne) is endemic; 61 cases (no deaths) were reported in 1958 and 42 cases in 1959. In each instance, the majority of cases was reported from Kivu Province. Earlier studies identified the virus in the rats of Coquilhatville, Leopoldville, Matadi, Elisabethville, and Costermansville. Foci of the infection have been reported in the past from the Congo Basin below Stanley-

ville, and in the Kasai, Katanga, Lake Kivu, and Ituri River regions. (1, 49, 33, 34)

BOUTONNEUSE FEVER

BOUTONNEUSE FEVER is occasionally reported, the vector being Rhipicephalus sanguineus. (1)

VI. Diseases Spread Largely by Contact with Animal or Other Extrahuman Sources

BRUCELLOSIS

BRUCELLOSIS is reported in sporadic outbreaks among both Europeans and Congolese in Orientale and Leopoldville Provinces. Both Brucella melitensis and B. abortus are encountered. The disease is endemic in the dairy districts of Kivu Province and adjacent Ruanda-Urundi. In 1959, it was estimated that about 17 percent of the 12,000 to 19,000 dairy cattle in the southern part of the Belgian Congo were infected. (1, 50)

TETANUS

From 1953 through 1957, an annual average of 677 cases of TETANUS was reported, with 303 deaths. In 1957, 656 cases, with 294 deaths were reported; the greatest number of cases (148) was reported from Leopoldville Province. Puerperal infections and cases of tetanus neonatorum predominate. (1, 13, 14, 5)

RABIES

Cases of HUMAN RABIES are reported from various parts of the country. From 1952 to 1957, an annual average of 48 cases with 26 deaths was reported. Thirty-four cases and 32 deaths were reported during 1957 (17 cases in Kasai Province); of these totals, 3 cases and 2 deaths were among Europeans.

SPIROCHETAL DISEASES

Infection with Leptospira icterohemorrhagiae numbered 254 cases with 75 deaths in 1957; the great majority (198) of the total reported and all the deaths were from Kivu Province.

PULMONARY SPIROCHETOSIS is sometimes reported. (1, 5)

SCHISTOSOMIASIS

SCHISTOSOMIASIS, both intestinal and urinary, is an important problem throughout the Congo. Schistosoma mansoni and S. intercalatum, which cause intestinal schistosomiasis, are widely distributed, with major foci in Katanga and Equateur Provinces. During 1957, 27,773 cases were reported among the Congolese in Katanga, and 14,414 cases among those in Equateur Province. Throughout the Congo, 47,445 cases were reported in 1957, of which 126 were Europeans; only 2 cases were reported from the area covered by FOREAMI. Over the past 6 years, the incidence has been steadily increasing among the Congolese, from 16,865 cases in 1952 to 47,319 in 1957; cases among the Europeans over the same period averaged less than 100 annually. In Katanga Province, extensive foci of S. mansoni are found in the southern and western districts, where the incidence ranges from 5 to 80 percent. The Lubumbashi River at Elisabethville is heavily infested. In Orientale Province, S. mansoni is prevalent in the northeast, in the basin of the

Ituri River, in the bay of Bobandama on Lake Edward, and in the Kasenye region near Lake Albert. Limited foci have been reported from the Lubilash River and Lake Foa region of Kasai Province, around Kimpese in the southwestern part of Leopoldville Province and around Bosobolo in the northwest corner of Equateur Province. Local populations tend to withstand the effects of intestinal schistosomiasis fairly well, and often present few or no symptoms. When symptoms are found, they are usually observed in the intestine or in the liver and spleen. Only the larger species of the Planorbis snails, primarily P. (Biomphlaria) alexandrina pfeifferi and P. (B.) alexandrina choanomphola, have so far been shown to be intermediate hosts of S. mansoni.

The form of intestinal schistosomiasis caused by S. intercalatum is reported to be endemic along the Congo-Luelba valley; infection rates approximate 50-80 percent in children and young adults and up to 4 percent in persons over 30 years of age.

Urinary schistosomiasis, caused by S. haematobium, is largely restricted to two foci, Katanga in the southeast, and the Lower and Middle Congo in the west. The most important areas are found in the Bas-Congo district of Leopoldville Province, in the eastern part of Katanga Province, in the vicinity of Elisabethville, and around Lakes Mweru and Tanganyika. The incidence of the disease has increased from 2,616 cases reported among the Congolese in 1952 to 9,709 cases in 1957. Of the latter total, 9,226 cases were reported from Katanga Province, where the disease is endemic. The total of European cases, during the same period, increased from 10 in 1952 to 33 in 1957. The principal intermediate host of S. haematobium is Bulinus (Physopsis) africanus, which is known to be widely distributed in the territory. (51, 13, 14, 5, 19, 1)

VII. Malnutrition, Mental Illness, and Miscellaneous Conditions

NUTRITIONAL DISEASES

Many types of nutritional diseases are reported from all parts of the country. In 1957, 56,475 cases were reported among the Congolese, and 1,482 among the European population. Seven thousand nine hundred eighteen cases of KWASHIORKOR (protein malnutrition) with 555 deaths were reported, the greater number coming from the area covered by FOREAMI and from Kivu and Kasai Provinces. Some 11,000 cases of AVITAMINOSIS were reported among Congolese. One thousand eight hundred fourteen cases (119 deaths) of BERI-BERI, 340 cases (7 deaths) of PELLAGRA, 991 cases (14 deaths) of RICKETS, and 850 cases (3 deaths) of SCURVY were also reported, primarily among the Congolese. (1, 5)

The distribution and causes of nutritional deficiency diseases are discussed in more detail in the section on "Diet and Nutrition" in this chapter.

GOITER is endemic in scattered foci throughout the provinces; from 1952 through 1957, an average of 8,000 cases was reported annually. (1, 13, 14, 5)

MENTAL ILLNESS

The exact incidence of MENTAL ILLNESS in the Belgian Congo is likely to remain unknown for some time to come because of difficulties inherent in obtaining vital statistics. However, certain special characteristics of mental disturbances in Africa have been observed. For example, psychoses are more frequent in men than in women; in certain equatorial areas, breakdowns are more frequent at the end of the rainy season; and Africans living in the so-called "extra tribal centers" away from their villages seem more predisposed to mental disease than those in familiar environments. Acute delusional states of "frenzied anxiety" are fairly common, usually resulting from the separation of individuals from the security of family or tribe. Europeans living among Africans are particularly susceptible to nervous depressions.

Indigenous medicine men sometimes "treat" mental illness by using dancing and drumming to induce a state of trance characterized by automatic behavior, hysterical convulsions, and running, until finally the point of dissociation is reached.

An assessment of the mental health situation in Africa south of the Sahara was made at a meeting of experts held in Bukavu, Belgian Congo, in 1957 by the WHO Regional Office for Africa, the Commission for Technical Co-operation in Africa south of the Sahara, and the World Federation for Mental Health. The data collected at this meeting provided the background material for the first seminar on mental health in Africa which was held in November and December 1958, at Brazzaville, French Equatorial Africa, under the auspices of the same organizations. The seminar was attended by some 30 psychiatrists, social scientists, and public health administrators. Discussions were mainly concerned with education and training in mental health work and the organization of services. (52)

MISCELLANEOUS

SILICOSIS has been reported occasionally among workers in the mines of Katanga and Kivu Provinces. Five cases were reported in 1958. (1, 34)

TROPICAL ULCERS have been reported as common (some 150,000 cases annually).

FUNGUS INFECTIONS of the skin are frequent. Madura foot is reported.

Mossy foot is reported as present.

HUMAN MYIASIS is occasionally seen, caused most frequently by the tumbu fly (Cordylobia anthropophaga) in the savannah country, and by C. rodhaini in the forest areas.

Sores which readily become infected are produced by the invasion of the skin by the itch mite (Sarcoptes scabiei), particularly of the hands and wrists, and of the chigger or sand flea (Tunga penetrans), in many parts of the body. (1)

Certain Medically Important Arthropods, Molluscs, and Other Animals

MOSQUITOES

Anopheles

Anopheline mosquitoes are abundant in all parts of the Belgian Congo except in the mountainous regions of the east and southeast. A. gambiae, A. funestus, A. moucheti, and A. nili are the principal vectors of malaria, but A. pharoensis and A. brunnipes have also been found to be infested with malaria parasites. A. hancocki and A. hargreavesi are incriminated as potential vectors in some localities. Other species of Anophelines identified in the Congo include: A. aureosquamiger, A. condolor, A. coustani, A. christyi, A. distinctus, A. demeilloni, A. implexus, A. kingi, A. obcurus, A. maculipalpis, A. paludis, A. pretoriensis, A. rhodesiensis, A. rufipes, A. squamosus, A. transvalensis, A. theileri, A. vinckei, and A. welcomei. The malaria vector most widely distributed throughout the Congo is A. gambiae; it is the principal vector in Leopoldville, where it breeds along the river, but varies in prevalence and behavior with different localities. Because of its extreme importance in the transmission of malaria, and the variance in its reported behavior patterns, the Second African Malaria Conference (Lagos, 1955) recommended that research on the taxonomy and bionomics of A. gambiae be immediately intensified. This species is also a recognized vector of Bancroft's filariasis. A. gambiae has a strong preference for human blood, and breeds in sunlit water in natural depressions or stagnant pools created in the course of agriculture, mining and lumbering operations, avoiding all moving water. A. funestus is principally responsible for malaria transmission in certain sections of Leopoldville, Kasai, Katanga, and Orientale Provinces, and is the chief vector for the Katanga area. It also vectors Bancroft's filariasis. A. funestus, A. moucheti, and A. nili, on the other hand, usually prefer the shaded grassy margins of slow-flowing streams. (1, 13, 14, 5)

Aedes

Over 29 species of Aedes have been collected in various parts of the Congo. Aedes aegypti, the chief vector of yellow fever, is widespread. Species of possible importance in the transmission of sylvan yellow fever are A. africanus, A. vitatus, A. luteocephalus, and A. simpsoni. A. aegypti is also incriminated in the transmission of dengue, or "break-bone fever." (1, 19)

Culex and Other Species

Numerous species of Culex are present, including Culex quinquefasciatus (C. fatigans), an effective vector of Bancroft's filariasis. Several other genera have been identified, including Eretmopodites, Taeniorhynchus, and Megarhinus. (1)

MOSQUITO CONTROL PROGRAMS

In the vast sparsely populated Belgian Congo, mosquito control is difficult and economically impractical except in the vicinity of the larger towns. The effectiveness of antilarval measures is reduced by the fact that the larvae of the stream-breeding anophelines thrive among the tall grasses, where penetration with oil or DDT is difficult. Intensive anopheline control measures have been undertaken in the past in Boma, Matadi, Leopoldville, Coquilhatville, Elisabethville, Jadotville, and other population centers, particularly in areas adjacent to European communities. Since 1947, a program based on residual spraying with DDT has been undertaken in Elisabethville and the surrounding villages. Domiciliary residual spraying had been tried earlier with little success in the vicinity of Leopoldville, and in 1952 mass spraying with DDT by means of helicopters was instigated, with excellent results. In the lower Congo, during 1953, residual spraying with DDT and Gammexane as well as aerial dusting was undertaken in the territories of Thysville and of Madimba. Antilarval and antimosquito fogging campaigns with "Swingfog" apparatus, and experimental medical prophylaxis with Daraprim were carried out in the villages. Of all the methods employed, house-to-house residual spraying was found to be the method of choice, considered on the basis of an entire territory. After 2½ years of regular treatment, the plasmodium index dropped from 90-100 percent to an average of 20 percent. Fogging also proved to be an efficient method of combatting larval breeding in deep vegetation along streambeds. In 1957, plans were being implemented to test a variety of malaria control methods in many pilot zones in the highly malarious regions of north Equateur Province, and a central organization to control and coordinate antimalaria efforts (Service d'Etude et de Coordination de la lutte antimalarienne - SECLA) has been established. (13, 14, 5)

Aedes control measures are enforced in Leopoldville, in the ports of the lower Congo, and in some interior cities. (1)

FLIES

More than 13 species of tsetse flies are known to exist in the Belgian Congo. Glossina palpalis is the principal vector of human trypanosomiasis or sleeping-sickness, but G. brevipalpis, G. fusca, G. morsitans, G. pallidipes, and G. fusci-pleuris, G. sererini, have been incriminated as vectors of human or animal trypanosomiasis. G. palpalis is highly dependent upon the presence of water and is seldom found more than 30 yards from heavily vegetated edges of lakes or rivers. This species is abundant along the banks of streams in the central basin but is absent at higher altitudes in the eastern mountains. G. morsitans on the other hand, prefers hot dry savannahs with a moderate amount of shade for cover and is not found in dense forest or open grassland. Tsetse flies are diurnal in habits, and seldom rise more than a few feet above the ground. They are attracted by sight to moving objects, sheltering trees, and livestock, show a marked preference for black, brown, and khaki colors, and are repelled by white. Antitsetse measures, such as bush clearance and fly-trapping, are undertaken only in limited regions. Tsetse flies tend

to disappear with the encroachment of civilization, as has been demonstrated near Elisabethville. Trypanosomiasis control, consisting primarily of chemical prophylaxis with pentamidine in infested regions, has been carried on in various areas of the Congo since 1918. Several large campaigns of pentamidinisation, designed to break the human-Glossina cycle of infection, were undertaken in the past few years in Leopoldville Province, along the Congo and Lukenic Rivers, but were unsuccessful in that regard. However, continuous control efforts have reduced the rate of new infection from 0.13 percent in 1952 to 0.02 percent in 1957. (1, 13, 14, 5)

Simuliidae are present in great numbers in the Congo, and Simulium damnosum, the principal intermediate host for the filarial worm, Onchocerca volvulus, is widespread. S. neavi is a secondary vector in the Lusambo area, and S. dentulosum is also present. The complete eradication of S. damnosum, which bred in considerable numbers in the rapids below Stanley Pool (near Leopoldville), has been obtained by means of aerial spraying with DDT solutions. Biting midges (Culicoides grahami and C. austeni) have been reported from this area, and may be vectors of Acanthochelonema perstans. Sand flies (Phlebotomus), which may act as vectors of leishmaniasis, are also present.

The body louse (Pediculus corporis), suspected of being a vector of typhus fever in the Maniema district, the head louse (P. capitis), and the crab louse (Phthirus pubis), are all found in this area, where conditions of hardship, malnutrition, and poor habits of personal cleanliness predispose the inhabitants to infestation. Lice have been occasionally incriminated in the transmission of relapsing fever in the Congo.

LICE

Rat fleas (Xenopsylla brasiliensis and X. cheopis), which are excellent vectors of epidemic plague, are abundant on wild and domestic rodents, and are sometimes found in the native huts. X. cheopis has been implicated in the transmission of plague in the Lake Albert region, and is a vector of murine typhus in scattered foci. X. nubicus has been reported from the Leopoldville area. The dog flea (Ctenociphalides canis) and the cat flea (C. felis) are also prevalent. The chigger or sand flea (Tunga penetrans) is widely distributed. (1, 53)

FLEAS

The soft tick (Ornithodorus moubata) is responsible for the transmission of relapsing fever in sections of Leopoldville Province, and in the eastern plateau country. Many other species have been described, and among the more important actual and potential vectors of disease among men and animals are: Haemaphysalis leachi, Rhipicephalus appendiculatus, R. simus, R. sanguineus, Boophilus decoloratus and Amblyoma variegatum. Many species of hard and soft ticks parasitize men and animals and vector various diseases. Several of the animal diseases are of economic and medical importance because of effects upon the available food supply. The itch mite (Sarcoptes scabiei) is widely prevalent. (53, 1)

TICKS AND MITES

VENOMOUS SCORPIONS

Many species of venomous scorpions have been identified, among which are Buthus trilineatus, B. hottentota, Babcurus centririmorphus, B. jacksoni, Isometrus maculatus, Lychas asper, L. burdoi, species of Parabuthus and Uroplectes, Pandinus viatoria, P. carimanus, and Opisthacanthus africanus.

SPIDERS

The larger species of spiders are greatly feared by the inhabitants, but not a great deal is known concerning their distribution or venomous properties. Possibly the most dangerous are Scodra griseipes, Heteroscodra crassipes, Hyterocrates didymus, Phoneyusa bidentata, and perhaps species of Ctenizidae, Ctenidae, and Argiopidae. (1)

CENTIPEDES

Large centipedes, suspected of being poisonous, include Scolopendra morsitans, S. subspinipes, and Ethmostigmus trigonopodus. Juices of vesicant beetles such as Diplopodis iuliformes cause irritation of the skin. Species of Paederus have been reported from the vicinity of Leopoldville. In the forest regions, dorylus ants are destructive and sometimes dangerous pests. Bedbugs (Cimex hemipterus and C. lecturlaris) are commonly found in most native dwellings. Plagues of the red locust (Nomadacris septemtasciata) and the African migratory locust (Locusta migrataria) occur sporadically in the Congo. (1, 19)

SNAILS

Several species of freshwater snails are implicated in the transmission of schistosomiasis which is prevalent in scattered foci throughout the Congo. Various races of Planorbis (Biomphlaria) alexandrina are known to be intermediate and potential hosts of the blood fluke Schistosoma mansoni. Physopsis africana globosa serves as intermediate host for S. hematobium and S. intercalatum. Bulinus (Pyrgophysa) forskalii appears to be present in some foci. (1)

POISONOUS SNAKES

A wide variety of poisonous snakes, including terrestrial, aquatic, and arboreal species, are found in the Belgian Congo. The largest number of serious bites are due to puff adders (Bitis arientans), which sometimes result in the loss of a limb, and less frequently in death. The venom of puff adders is very dangerous and it acts more rapidly than that of cobras, completing its action in less than 30 minutes. The Cape puff adder (B. inornata) is also reported from this area, as is the rhinoceros viper (B. nasicornis), whose venom is very toxic to humans. The latter is said to be a normally placid and inoffensive reptile which shows reluctance to bite. The highly poisonous gaboon viper (B. gabonia), found in the rain forests, injects venom deeply with its long fangs, killing victims almost instantly. Other vipers reported from this area are the night adder (Causus rhombeatus), Lichtenstein's adder (C. lichtensteini), the mole viper (Atractaspis congica), and the black burrowing viper (A. irregularis). Only one species of spitting cobra has been reported, the black-necked cobra (Naja nigricollis), which is able to blow its venom into the face of an opponent from a distance of 12 feet, causing painful conjunctivitis. Other members of the cobra family include the

black cobra (Naja melanoleuca), and Guenther's cobra (Elapechis guentheri). Several extremely dangerous mamba or tree cobras (Dendroaspis angusticeps and D. jamesonii) are seen fairly frequently and are greatly feared because of their quickness and readiness to bite. They attain a length of up to 14 feet, and their bite is often fatal. The less dangerous Atheris nitschei, A. squamiger, and Psammophis sibilians are numerous. Rear-fanged snakes of the family Colubridae are represented by the boomslang, a venomous tree-snake, which because of the position of its fangs, is not usually considered dangerous to man. The non-poisonous constrictor (Python sebae) is also found in the Belgian Congo. (54, 55, 1)

Several species of common domestic rats are found in various areas, including Rattus rattus, R. alexandrinus, R. frugivorus, and R. wroughton. The brown rat (R. norvegicus), which has aquatic tendencies, is found in the port cities, but not in Leopoldville or other inland cities. The plague bacillus has been demonstrated in R. alexandrinus, R. kijabius, Arvicanthus abyssinicus and Mastomys coucha ugandae. M. ungandae is frequently found in native dwellings, and serves as a major reservoir of infection as well as a link in the transmission of the diseases between wild and domestic rodents. Other species of wild rodents are potential reservoirs, including the rats, Cricetomys gambianus, Otomys tropicalis elgonis, and Cryptomys lechei, and the gerbil, Tatera nigrita beniensis. (1)

RATS

Diet and Nutrition

Daily per capita food consumption in the Congo has been estimated at 2,370 calories, over 80 percent of which is derived from cassava (manioc) (58 percent), grains (14 percent), and vegetable oils (10 percent). The daily per capita caloric intake and kilograms of food consumed per year are given in Table 1, page 34. Although the caloric need may appear to be satisifed by such an intake, the nutritional quality is unsatisfactory, being deficient in protein (especially animal protein) and certain vitamins and minerals. As shown in Table 1, the combined intake of all meat, fish, eggs, milk, and dairy products, the protective foods, adds up to less than 2 percent of the daily caloric intake. This protein deficiency contributes especially to the very high rate of infant mortality between the ages of one and four, and to reduced productivity and activity in the adult worker. (56, 12)

DAILY CALORIC INTAKE

Because of differences in tribal customs, and in soil and climatic factors governing the cultivation of food crops, it is somewhat difficult to make generalizations regarding the basic diet of the Congolese. For the great mass of the population, however, the diet is limited to foods which are produced locally--principally cassava (manioc), beans, bananas, plantains, sweet potatoes, and ground nuts, among the forest tribes; and maize, upland rice, and millet, among the inhabitants of the savannahs and steppe country. Usually one or

Table 1.--Estimated per capita daily caloric intake and kilograms of food consumed per year in the Belgian Congo, 1953 1/

Food	Calories per day	Percent of total calories	Kilograms per year
Wheat	20		2.1
Corn	210		21.0
Rice, rough	85		8.4
Other grain	15		1.8
Total grain	330	13.9	33.3
Sugar	15	.6	1.4
Cassava (manioc)	1,370	57.8	458.3
Sweet potatoes	60	2.5	21.7
Potatoes	5	.2	1.6
Dry legumes	45	1.8	4.9
Other vegetables	10	.4	20.2
Fruit (fresh)	250	10.5	137.2
Meat	10	.4	2.7
Fish	10	.4	6.2
Vegetable oils	250	10.5	10.4
Milk and dairy products	15	.6	7.2
Eggs	negl.	.4	14.0
Total	2,370	100.0	719.1

1/ Source 56.

a combination of crops predominate in a given area. For example, in the southern part of the country, in the neighborhood of Elisabethville, the basic food is cassava; in parts of Kivu Province, the staple food is rice; in the north, the diet is based essentially on bananas and corn; and in the neighborhood of Bukavu, beans and peas, with a little millet, constitute the basic food. (57, 58, 12)

RURAL DIETS

In most rural areas, the basic local food is usually boiled and eaten with a sauce of ground nuts, spinach, hibiscus and cassava leaves, and vegetable or palm oil. Cassava flour (fufu) is cooked and eaten as a paste (luku) or fermented (chikouangue) with a sauce of oil, and sometimes dried fish. Because of the prevalence of the tsetse fly and of the custom of regarding cattle as capital, meat is rarely eaten, and the small supply of animal protein is frequently obtained from caterpillars, grubs, and termites. Very little milk is consumed, and butter is more often used as a cosmetic than as a food. Fish is seldom eaten except by the riverain and coastal populations. However, the diets of the fishermen, though highest in protein, tend to be lacking in vegetables and fruits.

Urban diets, on the other hand, have lost most of their traditional character through contact with European culture. The consumption of white bread is increasing rapidly and is spreading from towns to rural areas. In the towns, well-supplied daily markets permit the purchase of meat, fish, and milk products which are comparatively rare in most village markets. However, the quantity and quality of urban diets are determined by the purchasing power of the individual. The more prosperous officials and traders achieve European levels of food consumption, but lower-paid workers (especially those newly arrived from the bush or with large families to support) find themselves worse off than in their villages.

URBAN DIETS

Another type of diet is that provided employees by owners of mines or other large industries. The composition of this ration is prescribed by law, and although nutritionally satisfactory and in conformity with traditional Congolese food habits, it is often rather monotonous. The diets of these workers, nevertheless, are generally superior in both quality and quantity to those which they would obtain in their villages. (12)

WORKERS' DIETS

In areas where the basic food is cassava or maize, cases of protein malnutrition are often seen, particularly in the Kwango district of Leopoldville Province, and in Kasai and Kivu Provinces. Vitamin deficiency states, particularly those due to lack of vitamins A and B_2, are often observed in the Kwango plateau where the soil is poor. Vitamin A deficiency is not, however, seen in the regions where red palm oil is produced and consumed, since this food is rich in the precursor of vitamin A, carotene. A syndrome due to protein deficiency, which is known by a variety of names including kwashiorkor, malignant malnutrition, diboba, and "syndrome policarencial infantil", occurs frequently in the Belgian Congo during the "hungry months" of preharvest shortage. These seasonal fluctuations in diet have a marked negative influence, particularly on the nutrition of African mothers and the birth-weight of infants. A typical picture of the annually recurrent "hungry months" is given in the following paragraphs:

MALNUTRITION

> "In Kasai the staple food is manioc. Manioc roots are taken from the ground as they are needed and, since the people plant at two different seasons of the year varieties which mature at different rates, manioc is harvested throughout almost the whole year. In order to make satisfactory 'bread', maize and millet are added to the manioc in the proportion of about one-third. But maize and millet are seasonal foods, the first harvest being in December, the second in April and May. During recent years the second harvest has failed in many villages. By July there are often no cereals in the village granaries, ground-nuts and beans have long since been consumed, and the 'bread' eaten

until December is perforce composed solely of manioc. During the dry season, which lasts from the end of May to the end of September, supplementary vegetable foods--green leaves of various kinds and fruits--become progressively more scanty. On the other hand, a little--a very little--small game and sometimes fish remain available.

"In September and October, a period of heavy rainfall, the grass grows quickly and the streams swell. There is no more hunting and fishing at this time, no berries, fruits, or insects. On the other hand, mushrooms are consumed to some extent until the arrival of flying ants saves the situation in the last days of November. From September to December the diet consists of manioc bread (of which there is plenty) without cereals or supplementary foods except for a handful of manioc leaves or mushrooms which are cooked with palm-oil and red pepper. At this time 'diboba' (kwashiorkor) abounds." (61)

FOOD CUSTOMS

Food consumption is governed by many well-established rules and customs. For example, most animal products are excluded from the diet of pregnant women, nursing mothers, and young children. Children, generally, are breast-fed until they are 18 months or 2 years of age, unless another pregnancy intervenes. If this food source is lost, the child frequently dies. From the age of 5 or 6 months they are given additional foods, such as millet or maize gruel, mashed bananas, or cassava bread to supplement the dwindling supply of mother's milk. At weaning time, the milk is completely replaced by the standard adult diet of starchy foods, and the diet becomes nutritionally inadequate. During this period, all animal products, including milk, tend to be excluded from the diet, either because they are considered inappropriate at this age or because taboos completely forbid their consumption. Until a child is 7 or 8 years old he may be unable to compete with his elders to get an adequate share of the family dish, or to obtain enough protein for proper growth. Only his increasing age status in the family and his widening activities outside the home enable him to get additional food (including grubs and insects) thus making it possible for his nutritional needs to be more nearly met. (60)

FOOD SUPPLEMENTS

A 1958 study of the supplementation value of different protein-rich foods in the diets of African children between the ages of 3 and 7 years, who were recovering from kwashiorkor, found that nitrogen absorption and retention was highest when milk was introduced to the basic diet. The next most valuable addition was found to be a combination of beans and peanuts. The basic diet consisted of rice, bread, banana flour, butter, palm oil, sugar, and fruits, which supplied an average of 25 percent of the daily nitrogen requirements. (62)

In the Congo, most food is grown and consumed locally, in season. Food production for domestic consumption is not completely adequate, and some supplemental food is imported. In the northern savannah areas, cassava, corn, bananas, sweet potatoes, peanuts, rice, and beans are cultivated, and a few chickens, goats, sheep, and hogs are grown. Large European plantations, ranging from 1,200 to several thousand acres, usually grow a sufficient supply of fresh vegetables and fruits for their own use.

LOCAL FOOD PRODUCTION

The acreage and production in metric tons of the principal food crops in the Congo in 1956 and 1957 are shown in Table 2.

Table 2.--Principal food crops produced in the Belgian Congo, by acreage and production in metric tons, 1956 and 1957 1/

Crop	1956		1957	
	Acreage (1,000 acres)	Production (1,000 metric tons)	Acreage (1,000 acres)	Production (1,000 metric tons)
Palm oil	509	223	496	235
Palm kernels	.....	140	496	146
Coffee	243	57	273	73
Peanuts	761	187	694	183
Corn	1,148	459	1,205	459
Cassava (manioc)	1,855	9,606	1,958	9,295
Sweet potatoes	564	2,029	552	1,638
Bananas and plantains	1,127	3,632	1,153	3,791
Peas and beans	1,341	405	1,397	412

1/ Based on Source 63.

Imported foods are increasing in quantity in the Congo, but for the most part are very expensive and available only to the more prosperous Europeans and Congolese, usually in the urban areas. Of some 106,400 metric tons of foods imported during 1957, wheat flour accounted for approximately 34 percent; meat (fresh, dried, and in preparations), 13 percent; beer and wine, 13 percent; milk (fresh, canned, or dried), 7 percent; fresh, canned, and dried fruits, 3 percent; butter, 3 percent; and cheese, about 1 percent.

IMPORTED FOODS

Recent surveys indicate that Congolese farmers producing cash crops, and thereby able to purchase some of their food, spent 30 to 40 percent of their total food expenditures for imported animal products, yet the proportion of these foods in the diet was very small. (63, 12)

FOOD SUPPLIES IN LEOPOLDVILLE

In Leopoldville, practically all fruits and vegetables are available in season at the local market, including lettuce, tomatoes, scallions, pineapple, oranges, avacadoes, peanuts, papayas, mangoes, bananas, and other tropical fruits. Oleomargarine is made locally, and Belgian and Danish butter is available at reasonable prices. Although no fresh milk is available locally, there is a variety of dried and condensed milk. A factory which opened in 1957 produces an acceptable reconstituted milk. Local and imported eggs are plentiful, and a variety of imported cheeses is available. Butcher shops are clean and stock fresh and frozen meats and poultry of good quality, but higher priced than similar items in the United States. Fresh and frozen fish are scarce and expensive. (14)

FOOD SUPPLIES IN ELISABETHVILLE

In Elisabethville, only dairy products, eggs, and fowl are produced locally in quantities approaching local demand, so that all other foods are imported and are consequently very expensive. Meat prices are high, and the quality is not the best. Local foods, dairy products, and milk are considered safe, but greens and fresh fruits should be well washed before they are eaten. (64)

A summary of the major food products grown in the Congo, by location, is given in Table 3.

Table 3.--Food resources of the Belgian Congo, and major areas of cultivation 1/

Common name	Latin name	Where grown
CEREALS:		
Guineacorn	Sorghum vulgare	All along the Congo River and its tributaries and in savannahs in Uele, Katanga, and Kasai regions.
Bulrush Millet	Pennisetum typhoideum	Congo steppes and Kasai.
Maize	Zea mays	Chief cereal crop, grown extensively along the Congo and on intervening steppes.
Rice	Oryza sativa	Near Stanleyville and Leopoldville, and in the extreme northeast.
Tamba (millet)	Eleusine corocana	Savannahs of eastern and southern Belgian Congo.

Table 3.--Food resources of the Belgian Congo, and major areas of cultivation 1/--Continued

Common name	Latin name	Where grown
CEREALS--Continued		
Wheat	Triticum aestiyum	Small amounts cultivated by whites, very little by Congolese.
LEGUMES:		
Haricot beans	Phaseolus vulgaris	Cultivated widely along rivers and in savannahs.
Lima beans Pigeon peas Bambara groundnut	Phaseolus lupatus Cajanus indicus Voandezia subterranea	Savannahs throughout the Congo.
Peas	Pisum sativum	White plantations near Leopoldville.
Peanuts	Arachis hypogea	Important crop in the savannahs and in Mayomba, near Lake Tanganyika.
ROOT CROPS:		
Water yam	Dioscorea alata	Grown everywhere.
Cassava, sweet	Manihot palmata	Entire Congo River Basin, in Mayomba, and in sandy northeast sector.
Sweet potatoes	Ipomoea batatas	Grown throughout the Congo.
Fra-fra potatoes	Coleus rotundifolius	Grown in the savannahs.
Ginger	Zingiber officinale	Large crops raised in upper Lupweshi district - near Lake Tanganyika.
Onion	Allium cepa A. angolense Allium spp.	Grown widely everywhere, large crops gathered along Congo River branches and by Arabs in Aruwimi.
Carrots and radishes	Daucus carota	Grown on white plantations near Leopoldville.
VEGETABLES:		
Eggplant	Solanum melongeana	A small fruited form is raised everywhere.

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Table 3.--Food resources of the Belgian Congo, and major areas of cultivation 1/--Continued

Common name	Latin name	Where grown
VEGETABLES--Continued		
Tomatoes	Lycopersicum esculentum	Grown extensively, especially in Upolo, Mayomba and Aruwimi.
FRUITS AND NUTS:		
Pineapples	Ananas comosus	Raised in large amounts in the forest and savannah regions.
Bananas Plantains	Musa sapientum Musa paradisiace	Grown all along the Congo River, in Upolo, and in Mayomba.
Oranges, sweet	Citrus sinensis	Grown chiefly by whites near Leopoldville and by Arabs in Aruwimi and Mayomba.
Mango	Mangifera indica	Raised everywhere, especially on white plantations near the Congo River.
Pawpaw	Carica papaya	Grown wild in the forest districts and is raised on European plantations on Congo River.
OIL PLANTS:		
Oil palm	Elaeis quineensis	Grows along most of the Congo and Aruwimi Rivers and on the shore of Lake Tanganyika.
Coconut	Cocos nucifera	Grown infrequently.
Benniseed	Sesamum orientale	Important crops grown by natives.
CONDIMENTS AND SWEETS:		
Chilies	Capsicum frutecens	Cultivated everywhere, especially near Leopoldville, Stephaineville and in Upolo and Mayomba.
Sugar cane	Saccharum officinarum	Raised chiefly on white plantations near Stephaineville.
CAFFEIN PLANTS:		
Kola	Cola acuminata C. nitida	Found wild in the forests, especially along the Congo River below Stanley Falls.

Table 3.--Food resources of the Belgian Congo, and major areas of cultivation 1/--Continued

Common name	Latin name	Where grown
CAFFEIN PLANTS--Continued		
Cocoa	Theobroma cacao	Little grown, chiefly on European plantations along the Congo River.
Coffee	Coffea arabica C. robusta C. liberica	Largest plantations near Leopoldville and Coquilhatville.

1/ Sources: 63, 66.

LIVESTOCK PRODUCTION

Annual livestock production has generally increased. Considering the postwar average (1952-1954) as 100, livestock production rates in 1958 were 108 for cattle, 123 for sheep, 120 for goats, and 108 for pigs. In 1958, there were 3,365 goats, 1,867 cattle, 1,147 sheep, and 383 hogs in the Belgian Congo. (65, 63)

FOOD SANITATION

European standards of food sanitation prevail in the larger cities, but in the hinterland the level of sanitation is low. In urban areas national and local health authorities supervise markets and food establishments and control the purity of imported foods. All meats and dairy products are subject to inspection by the veterinary departments and meats offered for sale must bear a stamp of approval. However, the use of condemned carcasses is sometimes permitted after sterilization by boiling. Some commercial and individual refrigeration facilities are available, and a limited number of plants for freezing fish are in operation. The Societe de Peche Maritime du Congo Belge freezes its own catch in the port of Matadi and subsequently transports it to Leopoldville in insulated railway cars. In Leopoldville the boxes are sent by truck to the company's refrigerated warehouses; from there they are despatched to markets in Leopoldville and its vicinity. (57, 1)

FISH

The Ndgala, a small fish of the sardine family, accounts for three-fourths of all fish consumed in the Congo. Preservation of this fish, which comes from Lake Tanganyika, constitutes a problem. It cannot be preserved in ice because it becomes a gelatinous and inedible mass. It can be preserved by rapid drying in the sun, after which it may be safely stored for 4 or 5 months, but it is believed that all vitamin A and a large part of the riboflavin are destroyed in the drying process. (58).

FOOD STORAGE

Food storage is closely related to the seasonal fluctuations in diet, and the availability of storage facilities poses a problem in some areas. Most families have small granaries or storage units, but these are unprotected from the ravages of numerous pests and parasites which attack stored food. It has been estimated that in some areas as much as one-third of the harvest is lost during storage. In rural areas, storage of root crops is not a problem, especially in the forest zone, for root crops are harvested throughout the year and can be stored in the ground until needed. (12)

EFFORTS TOWARD IMPROVED NUTRITION

Considerable attention has been given to nutrition in the Belgian Congo for 20 years or more. A number of conferences have helped to focus attention on the problem; among these are the three Inter-African Conferences on Food and Nutrition organized by the Commission for Technical Cooperation in Africa South of the Sahara (CCTA), the first of which was held in 1949 in the French Cameroons. These conferences paid special attention to the lack of personnel trained in nutrition. In 1959, the World Health Organization and the Food and Agriculture Organization jointly sponsored a special seminar to review progress in improving nutrition in the Congo. (12, 67)

FISH FARMING

Since 1942 the Government of the Congo has taken measures to increase the production of animal protein in the country, in the form of fish, since increases in fish can be achieved far more rapidly than increases in meat. Both fishing in natural waters and fish farming were encouraged. This program was supplemented by a trend toward increased refrigeration of fish so that it might reach the consumer in a fresh state. In 1949, studies were begun by the Service Piscicole du Congo Belge, in conjunction with IRSAC (the Institut de Recherche Scientifique en Afrique Central) in the potentials of lakes and other natural waters, and a Research Center was established at Kilwa. A hydrobiological mission concluded that Lake Tanganyika alone has a potential annual production of 30,000,000 kg. of fresh fish--roughly equivalent to the meat production from 105,000 head of cattle, which would require a total "livestock capital" of 875,000 head (total Congo cattle population in 1958, 1,867 head). Local species of fish have been studied, particularly Tilapia melanopeura and Tilapia macrochir. A very high yield of fish per hectare of pond area has been obtained by feeding the fish with flour-mill sweepings. This finding is of considerable importance in the Congo, since the average Congolese has a continual supply of wastes from cassava, maize, or rice, which can be fed to fish and thus converted to animal protein food. After considerable experimentation, Belgian experts launched a campaign for the establishment of fish farms in every province. By early 1955, the number of fish ponds had reached 110,873, representing a total water surface of 4,238 hectares (10,468 acres). The average annual yield is 1 to 2 tons per hectare. (68, 57)

FISH FLOUR

Experiments are also underway, in conjunction with IRSAC, in the manufacture and use of fish flour to supplement the local diet.

By 1957, a non-deodorized fish flour, which retained about half the vitamin A, had been produced in the laboratory, and in a small factory in Usumbura (Ruanda Urundi). The composition of the flour was 6.1 percent water, 7.9 percent lipids, 71.8 percent protein, and 14.2 percent ash, with 358 calories per gram. Certain recipes utilizing fish flour have been tried in the social center of Bukavu--one a soup and the other a sauce in which the local basic food, cassava, is soaked. Both of these were well received, and plans are underway to try them on a wider basis. (58)

EXPERIMENT STATIONS

Selected seeds and new methods of cultivation are tested in 26 local experimental stations and agricultural centers before being introduced to the indigenous population. For many years the experiment stations of INEAC (Institut National pour l'Etude Agronomique du Congo Belge) have been engaged in developing heavier-yielding and more-disease-resistant strains of both tree crops and field crops and in educating African farmers in the uses of rotations, compost, and where available, animal manure. This work has recently been reinforced by the activities of the Mission Anti-Erosive (MAE). The results of such work are already apparent over large areas of Kivu, where contoured and terraced hillsides contrast sharply with the gullying in neighboring parts of Central Africa. Other projects organized by the agricultural services with the assistance of MAE, INEAC, and IRSAC, place emphasis on rational semi-intensive farming and crop rotation to prevent exhaustion of the soil. In addition, agricultural education is being steadily developed, the number of schools of agriculture having risen from 10 in 1948 to 17 in 1954. (7, 8, 13)

LIVESTOCK IMPROVEMENT

The Veterinary Service is trying to improve Congolese livestock by selective breeding and better use of natural pastureland. A program for the gradual establishment of experimental stock farms is under way. Some farms are already in operation and are making it possible to provide the indigenous communities with selected bulls of breeds suited to local conditions (indigenous, zebu, and Pakistani cattle). The mobile veterinary service is encouraging the enclosure of paddocks and improvement of pasturage. Educational campaigns are also being organized to encourage the rotation of pasture, to prevent bush fires, and to promote the planting of fodder crops. (7)

Water Supply and Waste Disposal

WATER SUPPLIES

Surface water provides the principal water supply in the Congo. Villages are supplied by rivers, streams, lakes, or springs which are found throughout the country, but which are usually subject to pollution. Wells are not common in rural areas but may be found in the native sections of cities where piped water supplies are not available. Rivers are the single source of supply for all major cities except Stanleyville, whose principal water supply comes from subterranean galleries, although a supplementary river source has been

constructed. Water for Leopoldville is piped from the Lukonga River, and is filtered and ozonized before distribution. However, Westerners visiting Leopoldville are advised to boil all water before drinking to prevent contracting amebic or bacillary dysentery. Elisabethville's supply is obtained from the Lubumbashi River, and treated by filtration and chlorination before distribution. The piped water supply there is sometimes unsafe to drink for a period of 24 hours after the first heavy rains, and at such times the authorities publish a warning in the newspapers. (1, 43, 69)

Water distribution throughout all the principal cities and towns of the Congo is provided by REGIDESO, a semiofficial organization. Supervised water supplies have been provided to Boma, Matadi, Leopoldville, Coquilhatville, Stanleyville, Elisabethville, Luluabourg, Costermansville, and Jadotville, and supplies for 27 secondary centers are under construction. (1, 43, 3, 69)

In 1956, potable water was being supplied to such secondary centers as Kolwezi, Kamina, and Kongolo, and work was underway at Kaniama, Bukama, and Kasenga. In other centers, the water distribution is effected by the local industry, as for example, at Kipushi and the mining centers served by Union Miniere, at Ludubi by BCK Railway (Katanga Bas-Congo Railway), and CIMENKAT (Katanga Cement Factories), at Manona by GEOMINES (Geologic and Mining Company of Belgian Engineers and Manufacturers), at Luena by Charbonnages de Luena, and at Kisenge by BECEKA MANGANESE (a local manganese mining company). Water service at Kilwa is provided by the Colony, at Baudouinville by the Mission there, and at Albertville, where the purification plant will be the third largest in the Congo, by REGIDESO. The public fountains in the native cities surrounding Elisabethville, Jadotville, and Kolwezi have been replaced by private connections, with meters similar to those in European homes.

Water distribution systems are expanding rapidly. For example, in Katanga Province, from 1951 to 1955, the water distribution system in Elisabethville increased 103.8 percent, that in Jadotville 85.9 percent, and that in Kolwezi 82.1 percent. The volume of water distributed in this area increased 73.8 percent from 1946 to 1951, and 66.2 percent from 1951 to 1954. Statistics indicate that the native population has been the principal beneficiary of this increase. In the 3 cities mentioned above, the sales of water to the European population increased only 57 percent, compared to an increase of 74.5 percent in sales to the native population. The over-all volume of water distributed by REGIDESO throughout the Congo has grown from 1,923,707 cubic meters in 1941 to 20,952,974 cubic meters in 1954. (69)

WASTE DISPOSAL

In most population centers of the Congo, homes have underground septic tanks, filters, and leaching pits for the digestion of sewage wastes. The effluent is discharged into storm sewers in the cities and thence into nearby rivers and streams, and into cesspits in the

rural areas. In most native villages, human excreta is disposed of by the bored-hole type of pit privy, usually designed for communal rather than individual use, and situated on the outskirts of the villages. However, indiscriminate pollution of the soil is a common practice, particularly among the primitive tribes.

In some areas, due to improper construction and lack of drainage, pit privies are regularly flooded and create serious health hazards. In the Congolese sections of Leopoldville, flooding occurs because the sandy surface soils are underlain at about 20 feet by a layer of impervious sandstone which rises along edges of rivers and streams, thus preventing the rainwater from seeping into natural river channels and holding it in a series of water-tight basins. Consultants employed by the Congolese Government to survey drainage and sewage problems at Leopoldville (1953), recommended construction of both main and lateral drains for the removal of surface and underground seepage water as a public health measure. Only in the newest native villages, now under construction, is there evidence of adequate drainage planning and proper privy construction. The current method of spreading Congolese homes over an increasingly large area poses similar additional problems for the future. Eastern Leopoldville drains to the Funa River and its tributary the Yolo, which discharges to Chenal Kingabwa, a channel between the shore and the Ile de la Runa, while the river front of central Leopoldville slopes off rapidly and should furnish adequate diffusion. However, in the Bay of Galiema and below, the currents are slow and parallel to the shore, and sewage discharge into the bay would pollute the water supply intake of the city and cause objectionable conditions in the bay. (70, 1, 69)

HEALTH HAZARDS

In early 1956, a new sewage treatment plant was placed in service at the native City of Nicholas Cito, near Leopoldville, serving some 7,700 African personnel employed by OTRACO (Office d'Exploitation des Transports Coloniaux). The plant, which is entirely mechanized, was begun in April 1955, on the edge of the Funa River. It was designed and equipped by Societe Belge Dorr-Oliver, and constructed by OTRACO's public works subdivision. (69)

SEWAGE TREATMENT PLANT

The European section of Leopoldville has at present no sanitary system, except for certain large buildings and industries which are served by pipes discharging directly into the Congo River. The city is served by an ancient system of storm drains which were constructed piecemeal and which function less and less satisfactorily as the city continues to grow. This continuing growth has resulted in the need for a sanitary sewer system entirely separate from the storm drain system. The most immediate need is for the development of a master plan and the construction of main trunk sewers and outfalls; construction of laterals could be continued slowly over a period of years, paralleling the development of the city. No other problems are involved because the great flow of the Congo River provides an ideal place for the sanitary disposal of sewage. (70)

LEOPOLDVILLE

ELISABETHVILLE

Elisabethville, at the southern end of the Congo, has a comparatively modern sewage treatment plant which has been in operation with African personnel since 1923. In 1953, government consultants found the plant to be in good condition, and giving excellent results although local brewery wastes were being discharged untreated into storm drains. Other treatment works were being planned at that time, patterned closely after the original plant. In the African sections of Elisabethville, an experimental scheme was underway to provide each native family with a private privy or water closet. These were built in batteries set over a sanitary sewerline, and each privy was furnished with an overhead shower, equipped with a meter requiring payment of a nominal sum for the water used. Experts regard this water carriage method of sewage disposal of advanced design and feasible for use in Elisabethville, as unsuited to the needs of the Congolese section of Leopoldville, which will be dependent for some years to come on the pit privy as a principal means of sanitary waste disposal. (70)

Chapter IV

HEALTH RESOURCES

Personnel

On January 1, 1959, there were 8,385 public health personnel working in the Congo, compared with 3,865 in 1948, an increase of 114 percent in 11 years. Of these, 703 were qualified European physicians, representing a ratio of approximately 1 physician to every 20,000 inhabitants. Three hundred eighty physicians were employed in the various government health services, and 323 were connected with missions, private companies, philanthropic organizations, or engaged in private practice. Although this represents an increase of about 68 percent in the past 11 years over the 411 trained physicians who were registered in 1948 (representing at that time a ratio of roughly 1:28,000) additional qualified physicians are greatly needed. In 1959, there were, in addition, 128 African medical assistants, all in non-governmental employ. (1, 5, 19)

PHYSICIAN-POPULATION RATIO

According to a comparison of physician-to-population ratios made in 1955, the Belgian Congo (1:20,500) compared favorably with British Somaliland (1:64,000), Nigeria (1:58,200), Sierra Leone (1:30,800), Gambia (1:27,800), and French West Africa (1:27,000). The proportion of physicians was approximately equivalent to that in French Equatorial Africa (1:24,000), Uganda (1:23,000), Gold Coast (1:22,500), and was exceeded by French Somaliland (1:8,200), Kenya (1:10,000), Northern Rhodesia (1:11,100), and Nyasaland (1:15,700). (43)

In 1959, there were 45 European dentists in the Congo, 8 in governmental service and 35 in non-governmental employ, compared to 18 in 1948, an increase of approximately 140 percent.

DENTISTS

Nursing services in government hospitals in the Congo have traditionally been superintended and performed by Belgian religious orders. In early 1958, 1,239 European religious and lay nurses and 900 African male nurses were working in the country; in 1948, there had been 381 European religious and lay nurses, 435 locally trained African nurses, and 1,852 African nurses' aides in the Congo.

NURSES

The roster of other European medical personnel in January 1959 listed 82 pharmacists and 644 auxiliary medical personnel; in 1948, it showed 31 pharmacists and about 360 sanitarians. The 1959 African staff listed, in addition, 118 sanitary inspectors, 16 nurse midwives, 484 trained assistant midwives, and 3,927 certified assistant male nurses; in 1948, the paramedical indigenous staff included only 52 medical assistants, 62 sanitary agents and 142 midwives. (1, 19)

OTHER MEDICAL PERSONNEL

Table 4.--Medical and paramedical personnel in the Belgian Congo, January 1, 1957, 1958, and 1959 1/

Type of personnel	1957			1958			1959		
	Govt.	Other 2/	Total	Govt.	Other 2/	Total	Govt.	Other 2/	Total
EUROPEAN PERSONNEL:									
Physicians	340	303	643	374	312	686	380	323	703
Pharmacists	16	46	62	16	57	73	19	63	82
Dentists	9	28	37	10	30	40	8	35	43
Biologists	13	.....	13	11	.....	11	11	.....	11
Auxiliary medical and sanitary inspectors	447	268	581	472	148	620	483	161	644
Nurses (religious and non-religious)	124	960	1,084	139	1,011	1,150	155	1,084	1,239
Total	949	1,605	2,407	1,022	1,558	2,569	1,056	1,666	2,722
AFRICAN PERSONNEL: 3/									
Medical assistants	.....	104	104	.....	113	113	.....	128	128
Male nurses (certified)	.....	869	869	.....	892	892	.....	990	990
Sanitary inspectors	.....	88	88	.....	93	93	.....	118	118
Nurse-midwives (trained)	.....	15	15	.....	15	15	.....	16	16
Assistant male nurses (certified)	.....	3,256	3,256	.....	3,744	3,744	.....	3,927	3,927
Asst. midwives (trained)	.....	268	268	.....	375	375	.....	484	484
Total	.....	4,600	4,600	.....	5,232	5,232	.....	5,663	5,663
Combined total	949	6,205	7,007	1,022	6,790	7,801	1,056	7,329	8,385

1/Based on sources 5 and 19.

2/Missions, private companies, private practitioners.

3/State (local colonial government), missions, Fonds Reine Elisabeth pour l'Assistance Medicale aux indigenes du Congo Belge (FOREAMI).

Large industrial corporations operating in the Belgian Congo frequently provide their own medical staff for the care of African employees and their families. In 1958, for example, the European medical personnel employed by Union Miniere du Haut Katanga numbered 34 doctors, 48 nursing sisters of religious orders, 20 male and 31 female assistants; the African personnel included 270 nurses and students and 379 others. This staff cared for approximately 8,623 Europeans and 123,282 Africans. (71)

Medical and paramedical personnel employed in governmental and non-governmental organizations in the Belgian Congo in 1957, 1958, and 1959 are given, by category, in Table 4.

Training

Medical and paramedical training is provided in the Belgian Congo by the Belgian Government and by various missions and philanthropic organizations. The scope of this training is being increased year by year as increasing numbers of Congolese become qualified for and interested in public health training. In 1954, the Lovanium Congo University Center in Leopoldville added a medical school; in 1955, special schools of tropical medicine were established at Leopoldville, Stanleyville, and Elisabethville to provide post-graduate training in tropical medicine for Belgian qualified nurses and midwives. In 1956, a medical school opened in the official University of the Belgian Congo and Ruanda-Urundi at Elisabethville, and in 1957 a school to train nurses, especially for hospital service, was established at Leopoldville. (10, 5)

In addition, by 1959 there were 134 other schools for public health training of Africans: 3 for medical assistants, 10 for male nurses, 3 for health inspectors (sanitarians), 5 for nurse midwives, 42 for assistant midwives, 69 for auxiliary male nurses (orderlies), and 1 each for pharmacists' assistants and dentists. Table 5 gives details concerning most of these training facilities, by category, location, and number of students on January 1, 1959.

MEDICAL FACULTY LOVANIUM UNIVERSITY

Although the decree establishing the University Lovanium of the Belgian Congo was issued in February 1956, classes of the Faculty of Medicine had actually been functioning since October 1954. This apparent paradox is due to the fact that a medical center was originally established at Kisantu in 1925 by members of the Medical Faculty of the Belgian University of Louvain who felt that "the sanitary conditions of the Congolese populations could not possibly be improved in an efficient way without the cooperation of the Congolese themselves." There, nurses were first trained, then agricultural assistants, and later, medical assistants. From this concept grew the present University. (72)

Table 5.--Training facilities for African public health personnel in the Belgian Congo, January 1, 1959 1/

Category and location	Number of schools	Educational requirements for admission	Duration of course	Language of instruction	Number of students			
					Enrolled	Cont. study	Grad.	Failed
Physicians								
Faculte de Medicine Universite Lovanium Leopoldville	2	Congolese secondary school diploma and 1 year pre-university	7 years	French	22	22		
Faculte de Medecine Universite Officielle du Congo Belge et Ruanda-Urundi Elisabethville					2/12			
Nurses and midwives-graduate training in tropical medicine								
L'Institute de Medecine Tropical, section inferieure	3	Legal Belgian diploma for nurse or midwife or Congolese equivalent	15 months	French			2/20	
Government: Leopoldville							7	
Stanleyville							5	
Elisabethville							8	
Hospital nurses								
Ecole d'Infirmieres hospitalieres Leopoldville	1	9 years and superior grades	3 years	French	2/11			
Medical assistants								
Ecoles d'Assistants Medicaux Indigenes	3	9 years	6 years 4 theory	French	145	111	10	24
Government: Leopoldville			2 clin.		70	42	9	19
Affiliated: Kisantu					65	61	1	3
Kalenda					10	8		2
Male nurses								
Ecoles d'Infirmieres Indigenes	10	8 years	5 years	French	573	341	87	145
Government: Leopoldville			3 theory		74	45	9	20
Coquilhatville			2 pract.		44	21	10	13
Stanleyville					129	75	17	37
Elisabethville					64	41	8	15
Affiliated: Yasa					57	26	6	25
Kimpese					76	60	8	8
Yakusu					54	35	12	7
Katana					29	18	4	7

Kalenda					13	4	4	5
Luboudaie					33	16	9	8
Health inspectors								
Ecoles de Gardes Sanitaires	3	6-8 years	5 years	French	65	28	11	26
Government: Leopoldville			2 pract.		25	8	5	12
Bukavu			3 theory		24	10	3	11
Elisabethville					16	10	3	3
Nurse-midwives								
Ecoles d'Infirmieres-accoucheuses	5	6-8 years	3 years theory &	French	57	38	12	20
Government: Leopoldville			practice		4	2		2
Elisabethville					12	6		6
Affiliated: Yasa					13	10	3	
Mikalaie					38	20	8	10
Katana					3		1	2
Assistant midwives								
Ecoles d'Aides-Accoucheuses	42	Literate in the	2 years	Vernacular	405	174	93	107
Leopoldville	14	vernacular, some	theory &		109	61	28	20
Equateur	6	knowledge of	practice		35	20	11	4
Orientale	6	French			83	23	18	21
Kivu	6				70	17	10	33
Katanga	4				20	7	7	6
Kasai	6				88	46	19	23
Assistant male nurses (orderlies)								
Ecoles d'Aides-Infirmieres	69	Literate in ver-	1 year	Vernacular	1,104	413	318	283
Leopoldville	18	nacular, some	3 months	and French	150	82	44	24
Equateur	15	knowledge of	theory		144	24	59	61
Orientale	7	French	9 months		232	94	44	35
Kivu	3		pract.		112	34	19	28
Katanga	13				111	43	32	36
Kasai	13				355	136	120	99
Dentists								
Ecole de dentisterie								
Lubondaie	1	NA	NA	NA	20	12		8
Assistants in pharmacy								
Ecole d'Assistants en Pharmacie	1	NA	5 years theory & practice	NA	4	4		

1/Based on sources 73, 5, 42, 74, 23.
2/Figures for 1957.

The Lovanium University is a private institution subsidized by the public authorities, situated on a 550-acre campus at Kimuenza, 7 miles outside Leopoldville. The academic year extends from the end of October to the end of July. The coeducational university permits no racial, religious, or political discrimination. To be admitted to the Faculty of Medicine, students must hold an approved certificate for completion of secondary studies (Greek and Latin, Latin and mathematics, or Latin and science section) or a diploma from a local secondary school (Latin section) supplemented by a year of pre-university studies. Studies last for 7 years and lead to the degree of Doctor of Medicine, Surgery and Obstetrics. In 1958, 22 students were enrolled: 3 had just completed the third year of undergraduate study, 7 were in the second year, and 12 were in the third year. The first medical diplomas will be granted in July 1961. Although attendance is growing, it will be some time before more than 25 students are admitted per year, since preparatory school enrollment in the Congo is increasing fairly slowly. (42, 72, 75, 74, 19)

MEDICAL CURRICULUM

The medical curriculum of the Congo Lovanium University was established according to the requirements of Belgian law, and is comparable to that of Belgian universities. Certain adaptations of the medical study program have been made, however, particularly with regard to courses in parasitology, hygiene, and tropical pathology, which are more developed in the Congo than in Belgium. The curriculum, in brief, is as follows: 1 year of sciences (including philosophy, physics, chemistry, botany, and zoology), 2 years of candidature (preclinical) in natural and medical sciences, with emphasis on anatomy, histology, physiology, and biochemistry; and finally, 4 years of preparation for the doctorate. Of this final period, the first 2 years are concerned with pathology, physio-pathology, techniques of diagnosis, nosology and therapeutics, and becoming acquainted with the clinic; the third, with the elements of the diverse medical specialities and visits to the various clinical services; and the fourth, with hospital practice in the departments of medicine, surgery, and obstetrics. (76)

FACILITIES

The Faculty of Medicine has two large buildings on the University campus; one houses eight research departments, classrooms, student laboratories, a workshop, and a library, and the other the University Clinic. In late 1958, the Rockefeller Foundation appropriated some $230,000 to assist in the development of the medical school and the university hospital. Because the University has also assumed responsibility for public health activities in two nearby villages (Ndjili and Matete), with a combined population of 14,000, the medical students have direct practical experience with community problems as well as clinical experience with patients in the University clinic and hospital. (76, 74)

SCHOLARSHIPS AND LOANS

To help African students finance their studies, the government grants them scholarships and study loans, amounting to about $600 per

year for tuition and living expenses. These are granted to any student whose previous studies warrant admission to the University and who passes his courses successfully. Because many African students do not yet have the opportunity for adequate secondary school education, the University has organized 1-year pre-university courses designed to fill possible gaps in high school education. (76)

The official University of the Congo at Elisabethville also includes a Faculty of Medicine, which opened in October 1956. The conditions of admission, the length of studies, and the degree awarded are the same as in the Lovanium University. In 1957, there were 22 students enrolled at Elisabethville of whom approximately 12 were expected to continue into the study of medicine. (72)

UNIVERSITY OF THE CONGO

Medical assistants or auxiliary doctors, who will assist physicians or provide simple medical care in remote areas are also trained in three special schools at Leopoldville, Kisantu, and Katanga. Their education consists of 2 preparatory years, 4 years of theoretical medical studies, and 2 years of hospital practice. The course is quite comprehensive, with emphasis on the scientific side of medicine. The training approximates more closely that of a doctor than of a nurse, and includes instruction in bacteriology, parasitology, tropical pathology, diagnosis and treatment, medical administration, health legislation, and ethics. This training enables them, in an area where physicians are in short supply, to examine a patient, to assure the functioning of dispensaries in the interior of the country, to give emergency treatments, to follow the evolution of a disease, and to lead a team of sanitary inspection. The Ecole d'Assistants Medicaux Indigenes at Leopoldville is a well-equipped school, which has for many years been the headquarters of training for the Congolese health services. In 1953, it was reported to have a laboratory, good classrooms, a well-stocked library and excellent equipment, including many types of visual aids. In 1958, 118 Congolese were enrolled in these schools, and 11 had been graduated. (76, 73, 5)

MEDICAL ASSISTANTS

As an annex to the Faculty of Medicine of the Congo Lovanium University at Leopoldville there is a dental school, established in 1955, which will produce its first graduates in 1960. (76)

DENTISTS

A government school of hospital nurses was established in Leopoldville in October 1957. The course of study comprises 3 years, with a curriculum as follows:

HOSPITAL NURSES

CURRICULUM

First year: ethics, history of nursing, domestic economy, elementary chemistry and general biology, anatomy and physiology, elementary microbiology and parasitology, general hygiene, occupational hygiene, social prophylaxis, professional techniques.

Second year: General introduction to disease, hygiene, prophylaxis and introduction to communicable disease, pre-natal hygiene and maternity care, puericulture and infant hygiene, professional techniques.
Third year: Elementary pedagogy and psychology, theoretical and practical dietetics, elementary civil and administrative law, introduction to hygiene organization, welfare organization and social welfare organization in Belgium, prophylaxis and social medicine, professional techniques for domestic and household assistance, surgical care, surgical operations, and first aid and care of mental patients. (85)

PRACTICAL TRAINING

In addition, practical training in the hospitals and clinics of Leopoldville includes 9 months in internal medicine, 8 months in surgery, 2 months in obstetrics, 4 months in pediatrics, and 3 months in various other specialities. (85)

MALE NURSES

Much of the syllabus for the 3 year's course for medical assistants is shared by the male nurses or infirmiers indigenes, and this is followed by 2 years of practical experience. Originally these schools were established to train Africans to relieve European nurses, mostly nuns, and to assist physicians with administrative and clerical details. However, in view of the fact that today qualified infirmiers frequently have to work without constant supervision in rural dispensaries, training emphasizes pathology, microscopic diagnosis, and treatment, rather than nursing functions. By January 1, 1959, some 573 Congolese were enrolled in 10 schools for male nurses (ecoles d'infirmieres indigenes) located in hospitals and in mobile or non-mobile health units throughout the Congo.

ASSISTANT MALE NURSES

Assistant male nurses or orderlies (aides infirmieres) are also trained, in the vernacular, for local work in hospitals and dispensaries. In early 1959, 1,104 young Congolese were being trained in 69 such ecoles d'aides-infirmieres.

NURSE-MIDWIVES

Schools to train African girls as nurse-midwives (ecoles d'infirmieres-accoucheuses), were pioneered about 1953.. The course covers both general nursing and midwifery, the mornings being spent in practical work in the general or maternity sections of the hospitals and the afternoons in school. Five schools for nurse-midwives operating in January 1959 had a total enrollment of 57 students.

ASSISTANT MIDWIVES

Training for assistant midwives (aides accoucheuses) is largely of a practical nature, given in the vernacular in various maternity departments throughout the country. Forty-two such schools were functioning in January 1959, with a total enrollment of 405 students. (73, 5, 19)

Health inspectors (sanitarians) are trained in three ecoles de gardes sanitaires at Leopoldville, Bukavu, and Elisabethville. This type of training tends to be less popular than that for medical assistants and male nurses, and enrollment suffers where it is in competition with these other courses. Practical public health and hygiene work is undertaken each morning, with theoretical instruction and correlation with practical work in the afternoons. French and arithmetic are also taught. Sixty-five young men were being trained as gardes sanitaires in early 1959. (73, 5, 78, 19)

HEALTH INSPECTORS

A number of fellowships to travel and to study in the United States are given each year by BAEF (The Belgian American Educational Foundation, a constituent organization of IRSAC in the United States) to researchers of the Belgian Congo and Ruanda-Urundi. Some 20 Congolese fellows were studying in the United States in 1957, of whom 13 were drawn from government service. Of these, 4 were physicians, 2 agronomists, 2 economists, 2 professors, 2 jurists, and 1 territorial administrator. (79)

OUT-OF-COUNTRY TRAINING

Medical Care Facilities

On January 1, 1959, there were 558 governmental and non-governmental hospitals and maternities with an aggregate of 66,548 beds operating in the Belgian Congo, or a ratio of 1 bed for every 20,500 inhabitants. Of these, 127 were general and maternity hospitals for Europeans, with a total of 1,507 beds; 307 were general and maternity hospitals for Congolese, with 50,748 beds. In addition, there were 99 specialized facilities for Congolese, with 14,293 beds for sleeping-sickness, leprosy, and tuberculosis cases. (5, 1, 19)

HOSPITALS

A detailed listing of governmental and non-governmental hospitals and other medical establishments by specific location, type of institution, auspices, and number of beds on January 1, 1956 is given in Appendix A.

There were also, for Congolese, 1,294 State-operated dispensaries throughout the Congo, with a total of 9,182 beds; another 471 rural dispensaries with 8,418 beds, subsidized by the State; and 718 rural dispensaries with 2,457 beds, operated by private societies. Including hospitals, dispensaries, and special institutions, there were 86,599 beds in government and private institutions in early 1959--approximately 6.4 per 1,000 population. Table 6 lists medical establishments in the Belgian Congo, by sponsor and specialization, January 1, 1957, 1958, and 1959. (5, 1, 19)

DISPENSARIES

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Table 6.--Medical establishments in the Belgian Congo, January 1, 1957, 1958, and 1959 1/

Type of establishment	1957		1958		1959	
	Number of		Number of		Number of	
	Estab.	Beds	Estab.	Beds	Estab.	Beds
FOR EUROPEANS:						
General						
State hospitals and maternities....	52	751	56	792	55	901
Other hospitals and maternities subsidized by the State.....	28	131	29	164	36	202
Hospitals and maternities of private societies.....	35	257	39	402	36	404
Total.....	115	1,139	124	1,358	127	1,507
FOR CONGOLESE:						
General						
State hospitals and maternities....	104	17,517	116	18,940	118	21,355
State rural dispensaries.....	1,023	7,444	1,183	8,092	1,294	9,182
Other hospitals and maternities subsidized by the State.....	102	11,793	116	13,931	129	16,164
Other rural dispensaries subsidized by the State.....	238	5,779	251	5,226	471	8,418
Hospitals and maternities of private societies.....	87	13,600	76	12,817	85	13,229
Rural dispensaries of private societies.....	691	2,139	726	2,086	718	2,451
Total.....	2,245	58,272	2,468	61,092	2,815	70,799
Special facilities 2/						
State.....	37	4,187	36	4,396	40	4,779
Other 3/.....	142	8,288	54	8,957	59	9,514
Total.....	179	12,475	90	13,353	99	14,293
GRAND TOTAL.....	2,539	71,886	2,682	75,803	3,041	86,599

1/Based on sources 5 and 19.

2/For sleeping-sickness, leprosy, and tuberculosis.

3/Including establishments subsidized by the government, missions and philanthropic organizations.

Table 7 shows the distribution of hospitals and hospital beds on January 1, 1959, by province. Table 8 shows distribution of dispensaries and dispensary beds.

Table 7.--Hospitals and hospital beds in the Belgian Congo, by province, January 1, 1959 1/

/Columns H = number of hospitals; columns B = number of beds/

Type of establishment	Total		PROVINCES													
			Leopold-ville		FOREAMI Section Kwango		Equateur		Orientale		Kivu		Katanga		Kasai	
	H	B	H	B	H	B	H	B	H	B	H	B	H	B	H	B
FOR EUROPEANS:																
State hospitals and maternities	55	901	14	231	NA	NA	5	98	12	203	9	108	6	205	9	56
Other hospitals and maternities State-subsidized	36	202	4	23	4	16	3	12	4	26	5	39	4	47	12	39
Hospitals and maternities of private societies	36	404	2	10	NA	NA	4	22	9	48	9	42	9	266	3	16
Total	127	1,507	20	264	4	16	12	132	25	277	23	189	19	518	24	111
FOR CONGOLESE:																
State hospitals and maternities	118	21,355	19	5,049	NA	NA	19	3,234	21	3,772	20	2,804	18	3,345	21	3,151
Other hospitals and maternities State-subsidized	129	16,164	18	3,706	13	1,902	18	1,518	13	1,778	13	2,590	6	1,318	48	3,352
Hospitals and maternities of private societies	85	13,229	10	1,324	1	192	10	1,438	15	2,872	18	2,292	21	3,136	10	1,975
Special facilities2/ State-owned	40	4,779	6	1,167	NA	NA	7	515	2	228	13	97	1	NA	11	2,772
Other	59	9,514	5	451	2	700	19	3,783	NA	NA	6	1,336	6	1,259	21	1,985
Total	431	65,041	58	11,697	16	2,794	73	10,488	51	8,650	70	9,119	52	9,058	111	13,235
Grand total	558	66,548	78	11,961	20	2,810	85	10,620	76	8,927	93	9,308	71	9,576	135	13,346

1/Based on source 19.

2/For cases of sleeping-sickness, leprosy, and tuberculosis.

Table 8.--Dispensaries and beds in the Belgian Congo, by province, January 1, 1959 1/

/Columns H = number of hospitals; columns B = number of beds/

Type of dispensary 2/	Total		PROVINCES													
			Leopold-ville		FOREAMI Section Kwango		Equateur		Orientale		Kivu		Katanga		Kasai	
	H	B	H	B	H	B	H	B	H	B	H	B	H	B	H	B
State rural	1,294	9,182	212	3,180	NA	NA	149	304	386	4,001	272	1,246	83	98	192	353
Other rural, subsidized by State	471	8,418	57	2,581	201	2,527	52	688	77	1,212	23	176	38	1,234	23	NA
Rural dispensaries of private societies	718	2,451	187	595	22	154	84	180	125	627	249	857	NA	NA	51	38
Total	2,483	20,051	456	6,356	223	2,681	285	1,172	588	5,840	544	2,279	121	1,332	266	391

1/Based on source 23.
2/For Congolese.

During 1957, 2,562,836 patients were treated in public institutions, compared to 1,066,731 in 1947, an increase of about 70 percent over the 10-year period. Medical care in hospitals and dispensaries is free of charge to all Africans legally entitled to it. Daily hospitalization costs vary, however, with the geographic area. In 1956, these ranged from $8.42 at Luluabourg to $3.82 in Coquilhatville, for Europeans; and from $1.02 at Jadotville to $0.42 at Lusambo, for Congolese. However, costs for Congolese had risen from 20 to 30 percent in the vicinity of Leopoldville since 1956. Out of the total 1958 budget for Government Medical Services, amounting to U.S. $24,703,260, expenditure for medical care per inhabitant was calculated to be $1.80 per year. Maternal and child health activities have met with increasing response, and ante- and post-natal consultations are now a part of the maternal and child health services provided in general hospitals and dispensaries throughout the country. In addition, special children's wards have been attached to general hospitals in the main population centers, and a Red Cross pediatric clinic has been established at Leopoldville. The larger hospitals in the provincial capitals and major industrial centers are for the most part well-equipped and have laboratory and X-ray facilities. (7, 26, 5, 1, 10, 19)

COSTS OF MEDICAL CARE

In the Congo, medical research laboratories operate under various auspices: 1) Government medical service, 2) semiofficial (parastatique) organizations, and 3) private societies (societes prives), which may be subsidized by the government. All are supported by research facilities in Belgium, and wider collaboration and activity is now assured through IRSAC and by special provisions made under the Ten Year Plan. These facilities and their special projects are discussed in some detail under the subsection on Medical Research in this chapter. (81)

LABORATORIES

The first medical research laboratory was established at Leopoldville in 1899, and a second one at Elisabethville in 1913, concerned particularly with smallpox, typhoid, and malaria. Furthur laboratories were established at Stanleyville in 1924, at Coquilhatville in 1930, and at Pawa in 1934. The largest laboratory in the Congo, at the Institut de Medecine Tropicale Princess Astrid in Leopoldville, serves as the provincial laboratory and also as a center for the study of the tropical pathology of the world. (1, 81, 82)

All government laboratories are equipped to perform hygienic, bacteriologic, pathologic, and serologic investigations. In early 1959, medical laboratories were located at Leopoldville, Coquilhatville, Stanleyville, Bunia, Paulis, Bukavu, Elisabethville, and Luluabourg. Small research sections of the public health laboratories are found at Boma, Matadi, Leopoldville, Stanleyville, and Elisabethville. Special laboratories for plague investigation are located at Blukwa and Lubero, and one for yellow fever research at Stanleyville. Table 9 shows the government medical laboratories, their staff and

GOVERNMENTAL LABORATORIES

Table 9.--Government medical laboratories in the Belgian Congo, January 1, 1958 1/

Location	Number and type of personnel		Number of analyses	Vaccine and antigens produced
	European	African		
Laboratoire de Leopoldville	1 medical inspector 1 medical director 4 laboratory physicians 3 biologists 13 auxiliary doctors 3 laboratory technicians 1 mechanic	4 medical assistants 18 male nurses 15 sanitary inspectors 5 nurse-aides	237,033	66,750 cc
Laboratoire de Coquilhatville	1 medical director 1 laboratory physician 4 auxiliary doctors	8 male nurses 1 sanitary inspector 2 nurse-aides	77,328	38,850 cc TABC 2,100 cc propidon 930 cc autovaccine 10,135 cc antigens (serogglutination)
Laboratoire de Stanleyville	1 medical director 2 laboratory physicians 5 auxiliary doctors 2 nurses	6 male nurses 1 sanitary inspector 7 nurse-aides	94,634	
Laboratoire de Bunia	1 medical director 3 auxiliary doctors	4 male nurses	13,044	
Laboratoire de Blukwa (plague and rabies)	1 public health physician 2 auxiliary doctors	2 nurses 1 sanitary inspector 9 nurse-aides 44 other	6,080	184,000 cc plague 10,124 cc rabies
Laboratoire de Paulis	1 hospital physician 1 auxiliary doctor	1 male nurse 3 nurse-aides	31,504	
Laboratoire de Bukavu	1 laboratory physician 2 biologists 3 auxiliary doctors	2 auxiliary doctors 3 male nurses 4 nurse-aides	68,854	
Laboratoire de Butembo (plague)	1 public health physician 1 auxiliary doctor	1 sanitary inspector 2 nurse-aides 32 other		543,000 doses

Laboratoire d'Elisabeth-ville (virology)	1 medical director 3 laboratory physicians 1 biologist 6 auxiliary doctors 1 nurse	11 male nurses 4 nurse-aides	124,975	4,812,319 doses (measles) 100,000 cc rabies 126,450 cc TABC 81,000 cc anti-dysentery
Laboratoire de Luluabourg	1 medical director 1 biologist 2 auxiliary doctors		111,293	

1/Based on source 79.

activities in 1957, by location. Clinical laboratories are also maintained in the larger government, mission, and private hospitals. The Croix Rouge du Congo conducts a leprosy research laboratory at Pawa. (81, 1, 19)

IRSAC LABORATORIES

The semi-official laboratories of IRSAC, dealing with all aspects of research have their headquarters at Lwiro. A subsidiary laboratory at Astrida (Ruanda-Urundi) deals mainly with nutrition; the one at Elisabethville with biological problems; the laboratory at Uvira on Lake Tanganyika with climatic, biologic, and meterologic questions; and the one at Lake Tumbu, near Coquilhatville, with forestry and botanical problems. True medical research can, however, be carried on at any of these laboratories, should the need arise.

INDUSTRIAL LABORATORIES

In addition, several of the industrial concerns, such as the Union Miniere au Katanga and the Compagnie Miniere des Grands Lacs, support research and clinical laboratories. Mobile laboratories are also available to work with prophylactic teams in any part of the country. (81, 1)

VETERINARY LABORATORIES

The veterinary services at Kisegnie and Elisabethville maintain laboratories which produce animal vaccines, and a network of veterinary clinics to control animal parasites and diseases covers the entire Congo. This network is being strengthened under the Ten Year Plan. The Institut National pour l'Etude Agronomique du Congo Belge operates veterinary and agricultural research laboratories. (7, 1)

Results of investigations and research are published principally by the Annales de la societe belgie de medicine tropicale and the Bulletin de l'Institut Royal Colonial. The annual reports of IRSAC also contain summaries of scientific papers published by the staff. (81)

Medical Supplies

GOVERNMENT PHARMACEUTICAL SERVICE

The Government Pharmaceutical Service (Le Service Pharmaceutiques) is concerned with the control, distribution, and importation of drugs, pharmaceuticals, and hospital equipment. A laboratory of practical pharmacy within the Central Medical and Pharmaceutical Depot (D.C.M.P.) is charged with ensuring the control of drugs and their practical application. Pharmacists called to manage pharmacies in the larger hospitals receive practical training in this laboratory. (5)

During 1957, private pharmacists provided drugs, by prescription, in the amount of approximately U.S. $1,022,428. Drugs amounting to U.S. $5,061,598 were supplied by the Service to government hospitals and dispensaries, as follows:

Medications and dressings	$3,304,673
Miscellaneous small supplies	286,048
Movable medical and surgical equipment	433,815
Laboratory supplies	269,412
Dental supplies and materials	19,168
Radiological and electrical supplies	152,630
Public health supplies	454,237
Veterinary materials and supplies	141,712

These supplies were obtained from a variety of sources: 51 percent from Belgium, 16 percent from the Congo, 13 percent from France, 7 percent from Great Britain, 5 percent from the United States, 3 percent each from Germany and Switzerland, and approximately 1 percent from other sources. (5)

Some pyrethrum for use in insecticides and chinchona bark for quinine are grown for export in the Congo. Quinine alkaloids and salts and chinchona bark are produced at Costermansville by the Societe Cooperative Congokina. The quinine factory was producing at a monthly rate of about 2,500 kilograms of quinine and 800 kilograms of totaquine in 1950. About 80 percent of the quinine and all of the totaquine were being sold in the Congo for domestic consumption. A modernization program was underway at the time, and improved machinery from Belgium and Great Britain was being installed. (83)

Laws and Regulations

LICENSURE

A Belgian State Diploma or its recognized equivalent is required of all physicians, dentists, midwives, pharmacists, and druggists desiring to practice the healing arts in the Belgian Congo according to the Decree of 19 March 1952. Conditions and arrangements for the application of this Decree, including the period of practical training required of nurses, male nurses, health aides, and midwives, and the conditions under which medical assistants, nurses, nurse-midwives, and midwives trained in the Belgian Congo or Ruanda-Urundi may give medical care and perform certain interventions are defined in Ordnance No. 71/392 of 20 November 1952. The Decree of 2 June 1954, amending these regulations, provides that the Governor-General may, on the advice of a commission appointed by him, authorize persons holding diplomas recognized as equivalent to the diplomas awarded by a medical training school in the territory to practice medicine and related professions. (7, 84)

TRAINING REQUIREMENTS

Requirements for the establishment and organization of schools for African nurse-midwives, including the quality and quantity of staff, and details of administration, instruction, examinations, uniforms, diet, and remuneration of nurse-midwives trainees are outlined in Ordinance No. 71/44 of 22 February 1951. Ordinance No. 71/329 of 20 October 1955 provides for the establishment in the Congo of schools

of tropical medicine entitled to grant certificates of proficiency previously granted only by Belgian schools of tropical medicine, while Ordinance No. 71/214 of 23 July 1957 defines in detail provisions for the establishment in Leopoldville of a training school for hospital nurses, including specifications as to quality and duties of the staff, organization of the school, entrance requirements, curriculum, and promotion and qualifying examinations. (85, 77)

IMMUNIZATION REGULATIONS

Certificates attesting to immunization against smallpox are required of all travelers to the Belgian Congo; against cholera, of all travelers from infected areas; and against yellow fever, of all persons 3 months of age or older, arriving from infected areas. Typhoid, paratyphoid, and tetanus innoculations are advised for all international travel. Yellow fever immunization, regardless of the country of origin, is recommended by the U.S. Public Health Service for visitors to the Congo. (64, 86)

IMMIGRATION ORDINANCES

Sanitary control of immigrants at the frontiers by the Sanitary Police of the Immigration Services is defined in a number of ordinances including Ordinance No. 74/414 of 5 December 1953, No. 74/39 of 31 January 1954, and Ordinance No. 74/147 of 28 April 1954. All immigrants are obliged to possess a medical certificate, valid for 3 months from date of issue, showing they are free from symptoms of communicable diseases or mental illness. Immigrants lacking such certificates, are medically examined, granted certificates, placed in isolation, or excluded. Vaccinations and immunizations for immigrants are prescribed by the Governor-General.

Communicable diseases covered by these ordinances are plague, cholera, yellow fever, smallpox, typhus and serious rickettsioses, open tuberculosis, typhoid and paratyphoid fevers, leprosy, trypanosomiasis, cerebro-spinal fever, poliomyelitis, diphtheria, bacillary and amebic dysentery, relapsing fever, undulant fever, influenza, measles, scarlatina, erysipelas, whooping-cough, infectious pneumonia, anthrax, glanders, mumps, rabies, encephalitis lethargica, dengue, trachoma, tularemia, leptospirosis, puerperal fever, leishmaniasis, schistosomiasis, psittacosis, and any venereal disease in the infectious stage. (87)

COMMUNICABLE DISEASE CONTROL

Ordinance No. 74/213 of 22 June 1954 specifies measures to be used in the control of quarantinable, epidemic, and endemic diseases, and of other communicable disease throughout the Colony and in inland water, river, and air traffic by government health authorities. Quarantinable diseases are defined as: plague, cholera, yellow fever, smallpox, typhus, severe forms of rickettsiosis, and louse-borne relapsing fever. Epidemic diseases include dysenteries, cerebro-spinal meningitis, influenza, pneumococcosis, typhoid fever, paratyphoid fevers, scarlet fever, encephalitis lethargica, diphtheria, erysipelas, puerperal fever, variola minor or alastrim, measles, brucellosis, dengue, mumps, trachoma, poliomyelitis, anthrax, glanders, rabies,

whooping-cough, and chickenpox. Endemic diseases are defined as tuberculosis, leprosy, trypanosomiasis, tick-borne relapsing fever, yaws in the contagious stage, venereal diseases in the contagious stage (syphilis, gonorrhoea, soft chancre, lymphogranuloma venereum), leptospirosis; and other communicable diseases or diseases of an epidemic nature, such as malaria, ringworm, scabies, bilharziasis, kala-azar and all other forms of leishmaniasis, worms, infectious and serum hepatitis, and viral diseases in general.

Weekly notification of cases of the above-mentioned epidemic, endemic, and quarantinable diseases as well as of deficiency diseases is obligatory upon medical and paramedical personnel, heads of families or communities, employers, innkeepers, native chiefs and subchiefs, masters of vessels, heads of caravans, military officers, and persons infected. Special measures to be taken against all notifiable diseases are defined in detail in this ordinance. (87)

TRANSPORTATION OF PETS AND PLANTS

Due to occasional outbreaks of rabies from time to time, restrictions have been placed on the transportation of dogs and cats into the Congo by public carrier. Although these restrictions were not in effect in May 1958, they might be reinstated at any time, and therefore the importation of pets is not encouraged. Entrance to the Congo through most of the adjoining territories would require leaving animals in quarantine for a specified period. Shipments of plants and seeds to the Belgian Congo (except flower and vegetable seeds) must be accompanied by a certificate of origin stating that the articles are free from all cryptogram diseases or agents of infection. Imports of used clothing must be accompanied by a legalized certificate of disinfection. Authorization of the Minister of Colonies or the Governor-General of the Belgian Congo is required for importation of distilling apparatus, and saccharine and saccharine products. (88, 18)

INSPECTION OF FOOD ESTABLISHMENTS

The periodic inspection and disinfection of all establishments engaged in the production, preparation, manipulation, or sale of foodstuffs is prescribed by Ordinance No. 74/453 of 31 December 1952, as well as the prohibition of employment of persons suffering from communicable diseases or of those whose state of health or personal cleanliness are such as to constitute a health hazard. Specific requirements as to location, facilities, cleanliness, ventilation, and refrigeration of all business concerns transporting or trading in meat in towns or urban areas are defined in Ordinance No. 74/241 of 22 July 1953. Ordinance No. 54/179 of 14 June 1956 relates to inspection and control of all installations used for the production, purchase, manipulation, manufacture, deposit, preservation, transport of and trade in milk, margarine, and edible fats specifying tests for evaluating the hygiene quality, the sanitation control measures to be followed, licensing required, and duties of dairy inspectors. Amending Ordinance No. 54/124 of April 1957 provides detailed specifications as to kinds of milk by category, and authorizes the sale and

consumption of sterilized milk coming from animals suffering from quiescent tuberculosis. (85, 84, 89)

LABELING OF FOODSTUFFS

Containers of artificially colored foodstuffs must bear the name and address of the selling company as defined by law, and exact labeling is required for fruit juices, fruit syrups, marmalades, and gelatins, and for flour which is not pure wheat flour.

PROTECTION OF WATER SUPPLIES

Ordinance No. 52/443 of 21 December 1952, as amended by Ordinance No. 52/240 of 18 July 1953, prescribes measures necessary for the protection of springs, underground water-levels, lakes and water courses, for the protection against pollution and wastage of water, for periodic inspections, and for the control of the exercise of the rights of usufruct and of possession conceded.

CONTROL OF WASTE DISPOSAL

Ordinance No. 74/248 of 28 July 1953 (amending Ordinance No. 46/Hyg. of 4 June 1929) restricts sanitary facilities in populous areas to those connected to septic tanks, or public sewage systems, which must be approved by the sanitary works departments of provincial centers or by the local public hygiene service. The Ordinance gives detailed specifications for septic-tank construction, and places responsibility for proper cleansing, repair or modification deemed necessary by local sanitary authorities on the individual owner. Provincial orders enacted in 1955 and 1956 require periodic disinsecting of hotels, restaurants, boarding houses, and bars (e.g., every 3 months in Orientale and Kivu, every 6 months in Katanga), with provision for inspection of premises and of insecticides to be used by local medical officers. (88, 87)

OTHER HEALTH-RELATED LAWS

Provision of autopsy rooms in specific medical schools and hospitals, together with regulations governing their operation, staff, and sanitation are given in Ordinance No. 71/44 of 21 February 1957. Ordinance No. 72/270 of 7 September 1951 (amending Ordinance No. 27bis/Hyg. of 15 March 1933) regulates the practice of pharmacy, the traffic in poisonous substances, soporifics, habit-forming drugs, disinfectants, antiseptics, sera, vaccines, biological products, and products used for growing plants for pharmaceutical use. Ordinance No. 71/416 of 17 December 1957 limits the prescription of drugs by persons authorized to practice dentistry in the Colony. In support of malaria control efforts, Ordinance No. 51/162 of 4 May 1955, prohibits the keeping, cultivation, multiplication, sale or transport of water hyacinths (Eichhornia crassipes) which harbor Anopheles larvae. (85, 77, 84, 90)

OCCUPATIONAL HEALTH

Occupational health is the subject of a number of regulations. The Decree of 1 August 1949 is concerned with occupational disease occuring among Congolese workers, as amended by Ordinance No. 23/157 of 12 May 1950. Ordinance No. 23/37 of 1 February 1952 deals with safety and hygiene precautions to be observed in the use of toxic sprays (paint, varnish, and solvents), and Ordinance No. 23/60 of

14 February 1952 outlines survey procedures and silicosis control measures to be used in hazardous work places, including pre- and post-employment and radiological examinations of workers and annual clinical examinations. (88, 84)

Under Ordinance No. 41/48 of 12 February 1953, licenses are required for the establishment, transformation, or transfer of undertakings in which dangerous, unhealthy or offensive trades are carried on; the trades are listed in the Ordinance. Further regulations concerned with the health protection of African workers are found in Ordinance No. 22/338 of 31 October 1955. Compensation for occupational diseases occurring among persons who are not natives of the Congo is prescribed in Ordinance No. 22/342 of 2 November 1955, which also lists occupational diseases for which compensation is granted. This list is further expanded in Ordinance No. 22/245 of 13 August 1957 to include anthrax, poisoning by lead, mercury, phosphorous, carbon sulphide, and other chemical substances, and disorders caused by radioactive substances and X-rays. (85, 84, 90)

MINIMUM AGE LAWS

By decree, a number of minimum age laws have been established for the protection of minors. It is a punishable offense to employ indigenous inhabitants under 12 years of age, or unemancipated minors under 21 years of age without their father's consent, and minors under 16 may be employed only on certain authorized light work.

COMPULSORY MEDICAL CARE FOR WORKERS

A weekly day of rest and holidays with pay have been made compulsory, and there are measures to provide compulsory medical care for workers and their families. Regulations for the enforcement of these decrees were laid down in an Ordinance of 12 December 1954, which also prescribes minimum wage and ration scales for light, normal, and heavy labor. The Decree of 30 June 1954 amending the legislation on the work contracts of indigenous inhabitants strengthened the measure for the protection of workers and their families residing with them against occupational diseases and industrial accidents. For example, enterprises employing 1,000 workers must have at least 1 doctor; those with 500 workers must have at least 1 European health worker; and those with 100 workers must have at least 1 Congolese male nurse. (7)

PENSION SYSTEM

By a Decree of June 6, 1956, a system of pensions was instituted for African workers in the Congo and Ruanda-Urundi, financed by equal contribution of employer and employee, with assistance from the Colonial treasury. The ultimate aim is for the married worker at age 65 to have a pension equal to 75 percent of his average wage, if he has worked 45 years or more. (27)

Registration of births and deaths is compulsory in only part of the territory. (4)

Public Health Organization

NATIONAL DEPARTMENT OF MEDICAL SERVICES

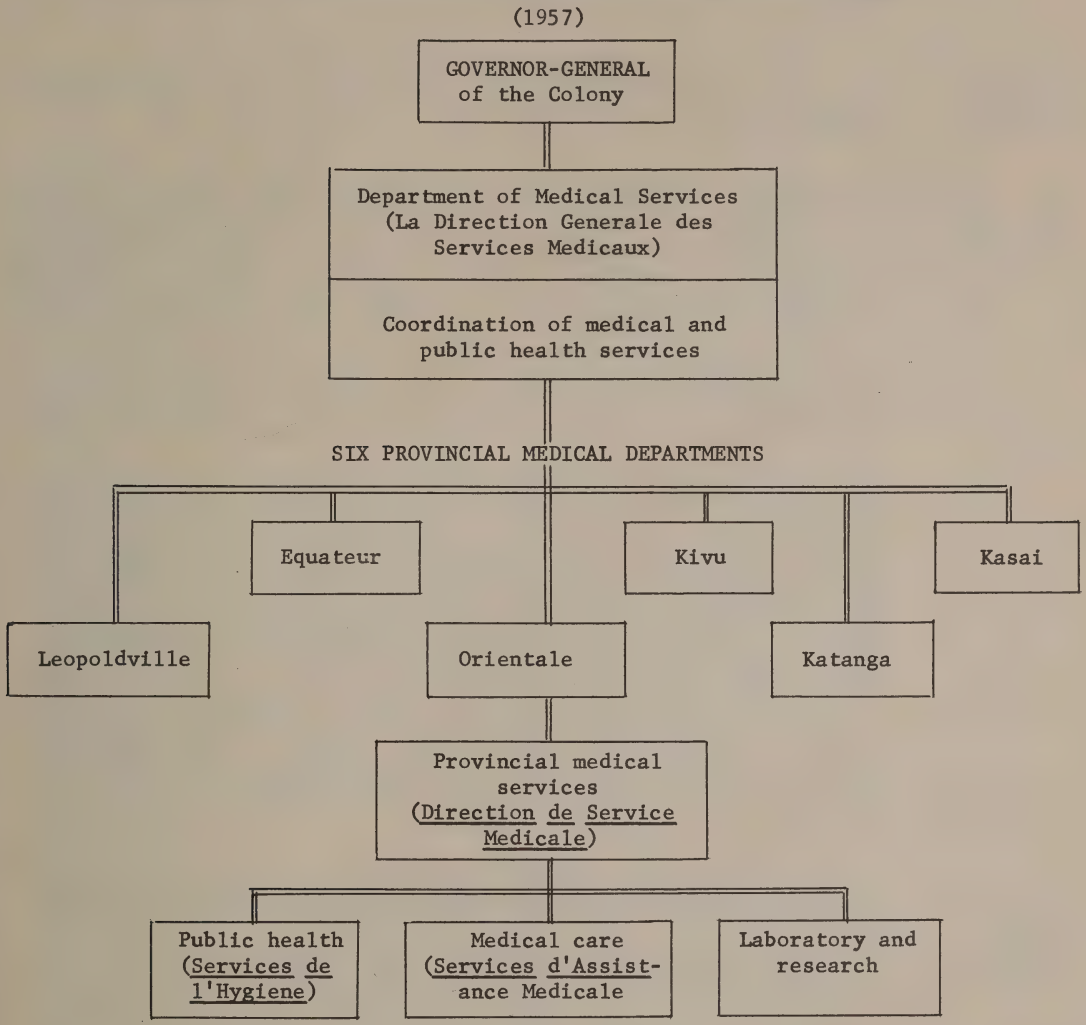
Responsibility for public health services within the Belgian Congo itself resides under the direct authority of the Governor-General, in the Department of Medical Services (Direction Generale des Services Medicaux), with headquarters in Leopoldville. These are administered by the Chief Medical Officer (Medecin-en-Chef), assisted by a deputy-director, a chief pharmacist, and a staff of technicians. There are four main divisions of the Department of Medical Services: hygiene, medical assistance, laboratories and research, and medical education. Questions of general policy are dealt with in Brussels by the Ministere des Colonies, with the advice, on public matters, of the Inspecteur generale de l'hygiene, an officer with long experience in the territory. (1, 57, 7, 26, 81)

PROVINCIAL MEDICAL DEPARTMENTS

Each of the six Congolese provinces has a provincial medical department (medecin provincial), which is administered by a provincial medical officer, assisted by a pharmacist. The technical services are coordinated through the central organization. Each provincial medical department comprises three sections: one concerned with public health functions; one with hospital maintenance and medical care; and one with laboratory and research services.

The public health section, staffed by officers with special training in the field of health, is responsible for the enforcement of regulations pertaining to public health and hygiene (such as water supply, sewage, food inspection, and insect and rodent control), the protection of the health of Congolese workers, and communicable disease control campaigns. The medical assistance section (also called the resident or traveling medical officers' section) is responsible for all medical care of both white and indigenous populations in State or affiliated hospitals. It emphasizes the establishment of rural hospitals and dispensaries and the operation of itinerant medical services in the tribal areas. Under the medical assistance program for indigenous inhabitants, each of the 120 Congo territories (subdivisions of districts, which are found in each province) is to be served by a central hospital including a dispensary, surgical pavillions and maternity wards, a network of rural dispensaries operated by Congolese nurses, and scattered treatment centers run by Congolese nursing aides with supervision by medical officers from territorial hospitals. For this reason, an effort is made to staff each territorial hospital with two medical officers, so that one may be absent on regular periodic visits to rural stations. The laboratories and research section of the organization directs the operation of the provincial laboratories and carries out investigations of various endemic and epidemic diseases. In addition to physicians, the staff includes entomologists, veterinarians, biologists, and other paramedical personnel. Each province has a laboratory for bacteriological and serological diagnosis, and some are equipped for the manufacture of vaccines. Figure 1 shows the organization of public health services in the Congo.

Figure 1.--Public health administration in the Belgian Congo 1/



1/Based on sources 5, 1, 7.

The funds expended for the maintenance of government health services in the Belgian Congo from 1956 to 1958 are shown in Table 10. (57, 26, 1)

MUNICIPAL HEALTH AUTHORITIES

Municipal health authorities exist in Leopoldville, Elisabethville, and Jadotville, charged with the enforcement of local health measures, especially those concerned with basic sanitation. (1)

PORT AND AIRPORT

Port and airport facilities as well as traffic to the interior on waterways, rivers, and lakes, operate under the International Sanitary Regulations. Responsibility for inspection and maintenance of these provisions is vested in the health authority, i.e., government medical officers and health officials, and physicians approved by the government. Pharmacists, health officials, nurses and medical assistants may be appointed in particular cases by the provincial governors to exercise all or some of these powers. Aircraft having carried an individual suffering from any one of the diseases listed in Order No. 74/213 of June 22, 1954, are subjected to such disinfection and disinsectization measures as the health authority deems necessary. (87)

In addition to providing medical and public health care for the Congolese, the government of the Belgian Congo has encouraged and subsidized health activities carried out by semi-governmental institutions, missions, and other philanthropic organizations. Employers have been required to provide medical facilities for their Congolese labor forces and in many areas have established elaborate health services. The work of the Direction Generale des Services Medicaux is thus integrated closely with that of various unofficial organizations, medical missions, and industrial concerns. In certain stipulated areas, responsibility for the health of the Congolese has been delegated to collaborating organizations such as the Croix Rouge du Congo, the Fondation de l'Universite de Louvain du Congo (FORMULAC), and certain medical missions which receive subsidies from the government. (1, 57)

COOPERATING HEALTH AGENCIES

Among the most important collaborating non-governmental organizations is the Fonds Reine Elisabeth pour l'Assistance Medicale aux Indigenes (FOREAMI - Queen Elisabeth's Fund for the Medical Assistance of Natives), an autonomous organization affiliated with the Colonial health services. FOREAMI has large financial resources derived from a fund created by the Belgian Government in 1930 with a substantial contribution from Queen Elisabeth. FOREAMI's policy is to operate a comprehensive health program in a designated area, beginning with a complete health survey, continuing with development of medical and welfare services on an intensive scale, and relinquishing the project to the regular government officers as soon as it becomes well established. The program was initiated in 1930 in the Bas-Congo district of Leopoldville Province, was transferred to the Kwango district in 1939, and has since been expanded into Kwilu and Lac Leopold II districts of the same province. In the province where such an

Table 10.--Financing of government medical services, Belgian Congo, 1956 to 1958 1/

Ordinary budget	1956	1957	1958
	U.S. DOLLARS		
Treatment of European personnel	$ 3,794,740	$ 6,614,200	$ 6,614,200
Treatment of auxiliary personnel	1,142,780	1,374,020	1,822,400
Traveling expenses	1,413,320	1,292,000	1,282,300
Salaries of Congolese personnel	2,023,320	2,104,720	2,490,080
Supplies	6,750,340	6,938,140	5,907,760
Other operating expenses	1,359,840	1,480,460	1,654,820
Social subsidies	3,566,840	4,386,440	4,691,900
Total	$20,051,180	$24,189,980	$24,426,782

Extraordinary expenses	1958
RURAL AREAS:	
Construction, enlargement, and equipping medical-surgical centers	$2,575,340
Construction and equipping of major rural dispensaries	416,740
Construction of living quarters for medical personnel	1,027,760
Purchase of car radios - tuberculosis control program	42,000
Construction of leprosaria	500,000
Subsidies to FOREAMI	368,000
Subsidies for investment in philanthropic organizations collaborating in medical action	714,660
Expenses of European personnel	100,000
Contributions to expenses of closing exercises	151,700
URBAN AREAS:	
Construction and equipment of hospitals, laboratories, health departments and dispensaries	3,362,640
Total	$9,258,840

1/Based on sources 5 and 19.

area is situated, an executive office responsible for the execution of the planned program is established at provincial headquarters. This office consists of the provincial governor as chairman, the provincial medical director, the medical director of FOREAMI, and other persons the Governor-General may designate. The African staff of FOREAMI is under the direction of a medical director appointed by the Governor-General upon the nomination of the Board of Trustees, and

medical and other staff are appointed by the Governor-General on the recommendation of the Chief Medical Officer. Persons or organizations with similar programs operating in the area may be requested to cooperate, and other medical personnel in the area are invited to participate in the deliberations of the executive office without vote. The

NATIVE WELFARE FUND (FBI)

Native Welfare Fund (FBI - Fonds de Bien-Etre Indigene) created in 1947 with a reserve of $47 million, works chiefly through financing services exclusively for Congolese welfare, such as hospitals, dispensaries, schools and the like. In the medical field, the Native Welfare Fund has supported systematic medical campaigns in less favored parts of the Congo, purchased specific drugs for campaigns against the many diseases endemic in rural areas, and trained medical assistants. It has contributed to anti-leprosy work, case-finding and treatment of tuberculosis, and purchased motorized ambulances. It is estimated that in 1956 FBI spent approximately $7,900,000, of which $2,750,000 was for medico-social activities.

CONGO RED CROSS

Numerous other philanthropic organizations cooperate in the care of the native peoples. The Congo Red Cross (Croix Rouge du Congo), established in 1926, maintains centers for the treatment of venereal disease in Matadi, Leopoldville, and other cities; operates a program for the control of leprosy in the Wamba and Ituri regions; and supplies supplementary general medical facilities throughout the area. The FORMULAC - the medical foundation of Louvain University (Fondation Medicale de l'Universite de Louvain au Congo) recruits

FORMULAC

medical officers from the University of Louvain; carries on the training of Congolese auxiliary medical personnel; and undertakes research work in the three medical centers it has established at Kisantu (Bas-Congo), Katanga (Kivu), and Kalenda (Kasai). The CEMUBAC -

CEMUBAC

the Congo Medical Center of the University of Brussels (Centre Medicale de l'Universite de Bruxelles au Congo Belge), recognized in 1939, has organized a tuberculosis detection program in Maniema district. The Social Fund of Kivu supports mobile units for the treatment of yaws and is concerned with maternal and child welfare work in the Kivu area. The National Society for Children (Oeuvre National de l'Enfance), and the Society for Indigenous Mothers and Children (Oeuvre de la Maternite et de l'Enfance Indigenes), are subsidized by the government, and operate welfare centers and maternity hospitals in many areas. The Father Damien foundation to combat leprosy (La Fondation Pere Damien pour la lutte contre la Lepre) was created in 1939 to carry on research in the control and treatment of leprosy. (1, 57)

MISSIONS AND OTHER COOPERATING GROUPS

In addition, a large number of Protestant and Catholic missions carry on medical and health work, some in special fields such as maternity and child welfare, or leprosy, but practically all offer some kind of medical aid. (In the Congo, "National" missions are differentiated from "foreign" in that the administration of the former is at least 80 percent Belgian.) Medical, educational, and welfare services are operated by large industrial concerns, such as Union

Miniere, for the benefit of their employees, and some companies carry on additional extensive work among families in neighboring villages. The Prince Leopold Institute of Tropical Medicine (Institute de Medecine Tropicale Prince Leopold) in Antwerp cooperates with the Colonial medical service in training European personnel and in laboratory and field research. (1, 57, 26)

The principal efforts of the Congolese health services are concentrated on the detection, constant surveillance, and treatment of the major endemic diseases, malaria, sleeping-sickness, leprosy, and tuberculosis, and on the elimination of social problems such as alcoholism and venereal disease. (7, 26)

INTERNATIONAL AGENCIES

CCTA

The Commission for Technical Cooperation in Africa South of the Sahara (Commission de Cooperation Technique en Afrique au Sud du Sahara - CCTA), with headquarters in London, was established in January 1950, and was the subject of an inter-governmental agreement signed in London on January 18, 1954, by Belgium, Federation of Nyasaland, France, Portugal, Ghana, Nigeria, Union of South Africa, and the United Kingdom. Its purpose is to ensure technical cooperation between the territories of member governments, and it concerns itself with all such matters affecting the member governments and their territories. For example, it recommends measures for achieving cooperation, convenes technical conferences, joint requests for technical assistance from international organizations, and administers the Inter-African Research Fund and the Inter-African Foundation for the Exchange of Scientists and Technicians. It is financed by contributions from member governments, and meets at least once a year. Under the auspices of the CCTA, a number of specialized units have been established to meet existing needs for scientific and technological cooperation in Africa. These are the Permanent Inter-African Bureau for Tsetse and Trypanosomiasis (BPITT) based at Leopoldville, the Inter-African Bureau for Soils and Rural Economics (B.I.S.) at Paris, the Inter-African Bureau of Epizootic Diseases (I.L.I.) at Bamako in French West Africa, and the Inter-African Pedological Service based at Yangambi in the Belgian Congo. At an extraordinary session of the CCTA in February 1958, the Inter-African Foundation for the Exchange of Scientists and Technicians was established. Under this foundation, technical experts and training facilities will be made mutually available by the member nations. (45, 91)

CSA

The Scientific Council for Africa South of the Sahara (CSA - Conseil Scientifique pour l'Afrique au Sud du Sahara), with headquarters in Bukavu, Belgian Congo, was established in November 1950 as scientific advisor to CCTA. Its members are eminent scientists selected from a wide range of disciplines which are important in the development of Africa today. A Joint Secretariat serves the two organizations; its publications are printed in London, while the data for them are gathered in Africa. (91)

UNICEF

The United Nations Children's Fund (UNICEF) has provided assistance in the past in the amount of $194,200 in the Belgian Congo and Ruanda-Urundi for a child feeding program which reached some 19,000 mothers and children, but this was completed prior to 1956. (92, 93)

WHO

The World Health Organization has given assistance to the Congo for the past decade. For the past 5 years WHO assistance to the Congo has been principally in the provision of short-term training fellowships to permit attendance of Congolese at regional meetings and seminars concerned with control of communicable diseases (leprosy, schistosomiasis, onchocerciasis, smallpox, rabies, and tuberculosis), environmental sanitation, food and nutrition, maternal and child care, radiation protection, and mental health. (94, 95, 96, 97)

Industrial Hygiene

OCCUPATIONAL HEALTH

Industrial hygiene services are administered through the Directorate General of Indigenous and Social Affairs, Public Worship and Education. The division responsible for labor inspection consists of three sections: the medical inspectorate, whose doctors are responsible for the health of workers and health conditions in places of work; the technical inspectorate, which is concerned with the prevention of industrial accidents; and the manpower inspectorate which carries out all the other non-specialized functions.

There is an 8-hour working day, and a system of family allowances for indigenous workers has been in force since January 1952.

Employers' mutual insurance societies which have been established to provide compensation for indigenous workers in the case of industrial accidents and occupational diseases. These societies are supervised by the labor authorities. (7)

Emergency Medical Services

The many dispensaries and hospitals scattered throughout the Congo provide emergency services when necessary, but no organization exists specifically for that purpose. The Congo Red Cross (Croix Rouge du Congo) also operates eight general hospitals and maternity homes in Pawa, Matete-Ibambi, Babande, and Medje, and a leprosarium at Pawa to provide medical care for Congolese. (5)

Medical and Related Research

A number of institutions are engaged in research in medicine, public health, or related fields in the Congo, in addition to the

provincial laboratories, whose work is discussed in the subsection on medical care facilities. The Princess Astrid Tropical Medicine Institute (Institut de Medicine Tropicale Princesse Astrid) at Leopoldville, through its Center for Study and Diagnosis of Enterobacteriologic Pathogens, has undertaken special research in pathologies of the blood (such as the study of the incidence of genetic anemias in the Congolese population), in the various bacterial pathogens which cause disease, in the diagnosis and control of sleeping-sickness and trypanosomiasis, in the isolation of poliomyelitis virus, and in the identification of enterobacteriologic pathogens. The Center, established in March 1956, is an autonomous unit within the framework of the Institute, collaborating with all medical and veterinary laboratories within the Congo and maintaining liaison with foreign diagnostic centers. Library research is facilitated by the Institute's Library which contains some 3,000 volumes and 160 periodicals, and maintains microfilm and photocopy services for medical and health personnel in the Belgian Congo and Ruanda-Urundi. The Union Miniere and the Compagnie Miniere des Grands Lacs have also established laboratories where valuable research work on the medical problems connected with mining and various diseases has been carried out. (98, 81)

PRINCESS ASTRID TROPICAL MEDICINE INSTITUTE

The Institut pour la Recherche Scientifique en Afrique Centrale (IRSAC) was established in Lwiro, by royal decree on July 1, 1957, and its present organizational structure was approved on January 13, 1949. In addition to the main center at Lwiro (with its subsidiary centers at Mutara and Irangi), there are other research centers located at Uvira, Astrida, Mabali, and Elisabethville. During 1957, scientific commissions were functioning at IRSAC in the following fields: the food and nutrition of indigenous inhabitants; animal biology; sciences of man; human and animal pathology; geophysics and astronomy; plant biology; and geology. In nutrition, extensive study has been made of the composition of nursing-mothers' milk and of the variation in the content of amino acids and proteins during the period of lactation. Studies are also underway in the nutritional values of local beers, and of the azote, vitamin B complex, and hexosamine content of local sorghum. In collaboration with the Leprosarium at Yonda (Coquilhatville), research is continuing in the evaluation of different protein fractions of leprosy serums, through the use of electrophoresis. In addition, research is continuing on the lactation of native women, the comparative values of soya and milk in infant feeding, the relationship between parasitism and nutrition (in malaria and ascariasis), and the metabolism of azote and fat in kwashiorkor. The relationship between malaria and nutrition is being investigated at Lwiro in conjunction with WHO. During 1957, $71,262 was expended for these activities. (79, 99)

IRSAC

In the field of animal biology, a study has been undertaken of the biology of the tsetse flies (Glossina) in Ruanda, on the basis of which the government has undertaken the eradication of tsetse flies in various parts of that area. Other studies are continuing with

regard to a phylogenetic revision of trypanosomes, the rearing of tsetse flies, specific determination of the life cycle of trypanosomes, research on the sexual and asexual cycles of Plasmodium atheruri, and investigation of Culicine populations and of Anopheles gambiae. Much of the detailed research in human and animal pathology is concerned with trypanosomes and their biochemical control. The first laboratory of pharmacodynamics in the Belgian Congo has been established at Lwiro. Among activities concerned with biology is the collecting of medical plants and the establishment of an herbarium in east Ruanda. (79)

PRINCE LEOPOLD TROPICAL MEDICINE INSTITUTE

In Europe, the Prince Leopold Tropical Medicine Institute (Institut de Medecine Tropicale Prince Leopold) at Antwerp, Belgium, cooperates closely with the Congolese medical service in laboratory and field research. Research concerning nutrition in Africa and the preparation of research personnel destined for the services of the Belgian Congo or of Ruanda-Urundi are also undertaken by a laboratory of the University of Brussels. Occasionally, the Chemical Research Laboratory of Tervueren, placed under the surveillance of a Commission of IRSAC, analyzes certain foods consumed by the population of the Belgian Congo. A laboratory of the University of Liege also prepares personnel for research. (81, 91)

BPITT

FOREAMI

SERAM

OTHER RESEARCH GROUPS

Other organizations in the Belgian Congo engaged in medical or related research are the Permanent Interafrican Tsetse and Trypanosomiasis Bureau (BPITT - Bureau Permanent Interafrican Tsetse et de Trypanosomiase) at Leopoldville, engaged in the documentation of human and animal trypanosomiases; the Queen Elisabeth Fund for the Medical Assistance of Congolese (FOREAMI - Fonds Reine Elisabeth pour l'Assistance Medicale aux Indigenes) at Leopoldville, doing applied research in tuberculosis, malaria, leprosy, trypanosomiasis, and nutrition; and the Section for Antimalaria Study and Research (SERAM - Section d'Etudes et de Recherches Antimalariennes) in Elisabethville, which conducts experimental malaria studies in Katanga Province. Other research organizations include the Urban Hygiene Service at Bukavu, concerned with entomologic and bilharzia studies; the Provincial Medical Service Laboratories at Bukavu, Elisabethville, and Stanleyville, which conduct research in bacteriology, serology, hematology, helminthology, protozoology, chemistry, entomology, and the toxicology of indigenous plants; the Plague Laboratory of the Provincial Medical Service at Butembo; and the Veterinary Laboratories at Elisabethville and Stanleyville, which study veterinary bacteriology, virology and parasitology, and produce veterinary vaccines and antigens. (100)

A nuclear research reactor designed for use in academic institutions, medical centers, and research laboratories, was installed near Lovanium University, 14 miles from Leopoldville, in late 1958. This reactor, the only one currently in operation on the African Continent, is under the control of the Belgian Congo Consultative Commission on Nuclear Sciences. Since June 1959, when the reactor went

into production, it has been used constantly in research and in production of radioisotopes. Radioisotope techniques are being used in the Medical Laboratory of the University for the measurement of cardiac output, blood volume, and uptake of iodine by the thyroid gland. Autoradiographic techniques coupled with radioactivation analysis are being used also in research on the measurement of sodium, calcium, and phosphorus in bone tissue. A suite of laboratories was being adapted in May 1960 to provide training in radioisotope techniques at Lovanium University, and a radioisotopes laboratory was being established at the Institute of Hygiene. Work planned for the Institute laboratory includes: quick determination of the potability of water supplies measuring the active carbon dioxide liberated from carbon-14 labelled sugars; tracing insects; the use of labelled insecticides to trace absorption and effectiveness of the insecticides; and tracing bilharzia-carrying snails. Equipment has been procured also for an isotopes laboratory for the Institute of Tropical Medicine in Leopoldville. (101)

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APPENDIX

LEGEND

G - Governmental
P - Private organization
NPA - Non-profit Organization
Mn - National mission
Me - Foreign mission
SO - Semi-official organization

APPENDIX A

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 1/

Location	Type of institution	Auspices	No. of beds
LEOPOLDVILLE PROVINCE			
Leopoldville District-			
Leopoldville	Hopital pour Europeens:		
	Clinique Reine Elisabeth	G	85
	Hopital de l'Utexleo	P	158
	Hopital pour Congolais at Leopoldville-Est	G	1003
	New Hospital for Congolese (under construction)	G	(1000)
	Hopital de la Rive pour Congolais a Leopoldville-	G	29
	Ouest (plus annex)	G	48
	Lazaret de Leopoldville-Ouest	G	344
	Tuberculosis Diagnostic Center	G	n a 2/
	Centre de Pediatrie de la Croix Rouge	NPA	90
Kikwit	Hopital pour Europeens	G	12
	Hopital pour Congolais	G	240
Lac Leopold II District-			
Inongo* 3/	Hopital pour Europeens (annexed to Medical-Surgical Center)	G	4
	Hopital pour Congolais a Centre Medico-Chirurgical	G	130
Nkosendjale	Leproserie (village)	G	n a
Oshwe*	Pavillon pour Europeens du Centre Medico-Chirurgical	G	4
	Hopital pour Congolais du Centre Medico-Chirurgical	G	132

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Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Bokoro	Hopital pour Europeens	Mn	6
	Hopital pour Congolais and Maternite	Mn	247
Bosobe	Hopital	Me	76
Mushie*	Pavillon pour Europeens (annex to Medical-Surgical Center)	G	4
	Hopital pour Congolais du Centre Medico-Chirurgical	G	160
Kwamouth	Hopital de Foreami	NPA	60
Bolobo	Hopital	Me	63
Nioki	Hopital pour Congolais du Forescom	SO	120
Kwilu District-Bulungu	Centre Medico-Chirurgical	G	80
Djuma	Hopital and Maternite	Mn	100
Vanga	Hopital des Missions Etrangeres	Me	149
Leverville	Hopital pour Europeens des HCB	P	6
	Hopital pour Congolais des HCB	P	252
Tango	Hopital pour Congolais des HCB	P	118

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Idiofa*	Hopital pour Congolais du Centre Medico-Chirurgical	G	200
	Hopital pour Europeens du Centre Medico-Chirurgical	G	4
Ipamu	Hopital and Maternite	Mn	170
Gungu*	Pavillon pour Europeens du Centre Medico-Chirurgical	G	4
	Hopital pour Congolais du Centre Medico-Chirurgical	G	168
Mukedi	Hopital pour Europeens	Me	4
	Hopital pour Congolais plus Maternite	Me	76
Masi-Manimba*	Centre Medico-Chirurgical (Foreami)	NPA	120
	Maternite (Foreami)	NPA	30
	Clinique pour Europeens	NPA	n a
Pay	Hopital (Foreami)	NPA	120
	Maternite (Foreami)	NPA	48
Kitoy	Hopital (Foreami)	NPA	30
Kinzamba	Hopital (Foreami)	NPA	60
Mosango	Sanatorium (Foreami)	NPA	180
	Leproserie and village for lepers (Foreami)	NPA	250
Yasa	Hopital	Mn	102
	Maternite	Mn	20
	Leproserie	Mn	60

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Mokamo	Kasai Company Hospital	P	192
Banningville*	Hopital pour Europeens	G	8
	Hopital pour Congolais	G	180
Olsen	Hopital pour Congolais de l'Otraco	P	114
Cito	Hopital pour Congolais de l'Otraco	P	47
Kimuenza	Hopital pour Congolais de l'Otraco (under construction)	P	(316)
Bagata	Centre Medico-Chirurgical (Foreami)	NPA	120
	Maternite	NPA	30
Fatundu	Hopital (Foreami)	NPA	60
Kwango District- Kenge*	Central Medico-Chirurgical	NPA	120
	Maternite (Foreami)	NPA	30
Kimbau	Hopital (Foreami)	NPA	60
	Maternite	NPA	30
Feshi*	Centre Medico-Chirurgical (Foreami)	NPA	120
	Maternite (Foreami) (also European clinic and nutrition laboratory)	NPA	30
Bindungi	Hopital (Foreami)	NPA	60

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Kahemba	Pavillon pour Europeens du Centre Medico-Chirurgical	G	4
	Hopital pour Congolais au Centre Medico-Chirurgical	G	144
Kajiji	Hopital	Me	70
	Leproserie	Me	91
Kasongo-Lunda	Centre Medico-Chirurgical (Foreami)	NPA	120
	Maternite (Foreami)	NPA	30
Popokabaka*	Centre Medico-Chirurgical (Foreami)	NPA	120
	Maternite (Foreami)	NPA	30
Kimvula	Centre Medico-Chirurgical (Foreami)	NPA	150
	Maternite (Foreami)	NPA	30
Bas-Congo District-			
Boma*	Hopital pour Europeens	G	40
	Hopital pour Congolais	G	267
Moanda	Pavillon pour Europeens du Centre Medico-Chirurgical	G	4
	Hopital pour Congolais au Centre Medico-Chirurgical	G	130
Lemba	Hopital pour Congolais (Maternite)	P	148
Matadi*	Hopital pour Europeens (including pavillon for phychiatric cases awaiting departure)	G	32

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Matadi*	Hopital pour Congolais (maternite under construction)	G	282
Sona Pangu	Hopital (maternite)	Me	81
	Leproserie	Me	250
Lukula*	Centre Medico-Chirurgical	G	110
Kangu	Hopital	Mn	250
	Pavillon pour Europeens	Mn	5
Loango-Luvungu	Leproserie	Mn	250
Kiumba	Hopital	Mn	297
Kizu	Hopital	Mn	156
Vaku	Hopital	Mn	170
Kikonzi	Hopital	Me	57
Tshela	Hopital pour Congolais de SCAM	P	220
	Pavillon pour Europeens	P	3
Cataractes District-Gombe-Matadi	Centre Medico-Chirurgical	G	120
Kimpangu	Hopital pour Congolais (maternite)	Mn	200
Kimpese	Hopital	Me	152

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Thysville*	Hopital pour Europeens de l'Otraco	P	8
	Hopital pour Europeens (under construction 1956)	G	(25)
	Hopital pour Congolais de l'Otraco	P	210
Moerbeke	Hopital pour Europeens (Sucriere Company)	P	1
	Hopital pour Congolais (Sucriere Company)	P	133
Luozi*	Pavillon pour Europeens du Centre Medico-Chirurgical	G	4
	Centre Medico-Chirurgical Hopital pour Congolais	G	140
Mangembo	Hopital	Mn	160
Kibunzi	Hopital	Me	156
Kimpevolo	Leproserie	Me	70
Kisantu	Hopital pour Europeens de Lovanium	NPA	20
	Hopital pour Congolais	NPA	190
	Maternite (Lovanium)	NPA	45
Sona-Bata	Leproserie	Mn	145
	Hopital	Me	120
EQUATEUR PROVINCE			
Equateur District-			
Coquilhatville	Hopital pour Europeens	G	36
	Hopital pour Congolais	G	350

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Flandria	Hopital pour Congolais HCB	P	75
Bolomba	Prefab-Centre Medico-Chirurgical	G	n a
Yuli	Hopital	Me	n a
Ingende	Centre Medico-Chirurgical	G	n a
Bikoro	Hopital Centre Medico-Chirurgical	G	n a
	1 pavillon administratif	G	n a
	1 maternite	G	n a
	3 pavillon hospitalization	G	n a
	1 pavillon chirurgical	G	n a
	1 pavillon isolement	G	150
	Centre Medico-Chirurgical (mobile)	G	n a
Ireba	Hopital	G	110
Camp Militaire	Hopital Civic	G	n a
Tondo	Hopital (Leproserie)	Me	50
Congo-Ubangi District-			
Lisala	Leproserie Dondo-Kania	G	24
	Hopital pour Europeens	G	6
	Hopital pour Congolais	G	209
Bumba	Hopital Centre Medico-Chirurgical	G	238
Lolo	Hopital	Mn	40
Yambuku	Hopital	Mn	80

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Budjala	Centre Medico-Chirurgical Hopital (under construction)	G	n a
Elema	Leproserie	G	n a
Baya	Hopital	Mn	76
Banga Bola	Hopital	Mn	144
Libenge	Hopital pour Europeens	G	4
	Hopital pour Congolais	G	100
	Lazaret pour tuberculeux	G	14
Gemena	Centre Medico-Chirurgical	G	126
	Lazaret pour tuberculeux	G	24
Bwanda	Hopital Leproserie	Mn	64
Bosobolo	Centre Medico-Chirurgical Hopital (under construction) 1 pavillon chirurgical 1 pavillon hospitalization	G	n a
	Lazaret pour tuberculeux	G	48
Karawa	Hopital Leproserie	Me	65
Tandala	Hopital	Me	60
Banzyville	Centre Medico-Chirurgical Hopital	G	160
Motende	Leproserie	G	n a
Wapinda	Hopital	Mn	20

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Alberta	Hopital pour Europeens HCB	P	4
	Hopital pour Congolais HCB	P	120
Binga	Hopital pour Europeens	P	4
	Hopital pour Congolais	P	220
Yaligimba	Hopital pour Europeens HCB	P	6
	Hopital pour Congolais HCB	P	135
Dongo-Gwaka	Hopital pour Europeens HCB	P	4
	Hopital pour Congolais HCB	P	120
Yamolta	Hopital pour Congolais HCB	P	130
Roby	Hopital pour Congolais	P	150
Tshuapa District-			
Boende	Hopital pour Europeens	G	6
	Hopital pour Congolais	G	121
Masanga	Hopital pour Congolais	P	95
Bokutola	Hopital pour Congolais	P	22
Wafania	Hopital and Leproserie (600 Lepreux)	Mn	50
Monieka	Hopital	Me	64
Basankusu	Hopital pour Europeens	G	8
	Hopital pour Congolais	G	110
Bakungu	Leproserie	G	n a

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
ORIENTALE PROVINCE			
Stanleyville District-			
Stanleyville	Hopital pour Europeens	G	40
	Hopital pour Congolais	G	324
	maternite	G	84
	Hopital pour indigenes	P	70
	Lazaret pour Congolais	G	112
	Lazaret pour Congolais alienes (mental cases)	G	40
	Laboratorie Provincial	G	n a
Buta	Hopital pour Europeens	G	10
	Hopital pour Congolais	G	140
	maternite	G	18
	lazaret	G	22
Niangara	Hopital pour Europeens	G	13
	Hopital pour Congolais	G	210
	maternite	G	24
Basoko	Hopital pour Europeens	G	6
	Hopital pour Congolais	G	93
	maternite	G	117
	leproserie	G	60
Elisabetha	Hopital pour Europeens	P	4
	Hopital pour Congolais HCB	P	223
	maternite	P	61
Yangambi	Hopital pour Europeens INEAC	P	11
	Hopital pour Congolais INEAC	P	159
	maternite	P	23
	lazaret	P	62

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Yaluwe	Hopital pour Europeens du Lomami Company	P	2
	Hopital pour Congolais du Lomami Company	P	177
Yaleko	Hopital pour Congolais	P	60
Banalia	Centre Medico-Chirurgical	P	100
	Hopital rural	P	100
	Pavillon Europeens	P	4
	Maternite	P	36
Bafwasenda	Centre Medico-Chirurgical (under construction)	P	n a
	Hopital rural	P	75
	Maternite	P	15
Pothierville	Centre Medico-Chirurgical	P	205
Opala	Hopital pour Europeens	G	4
	Hopital pour Congolais and maternite	G	92
	Centre Medico-Chirurgical (planned)	G	n a
Yabaondo	Centre Medico-Chirurgical (under construction)	P	n a
Yakusu	Hopital pour Europeens	Me	4
	Hopital pour Congolais	Me	89
	Maternite	Me	11
	Leproserie	Me	n a
Yakuma	Hopital rural	G	68
	Maternite	G	8

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Ituri District-			
Bunia	Laboratory under construction	G	n a
	Centre Medico-Chirurgical	P	101
	Lazaret	P	10
Irumu	Hopital pour Europeens	G	9
	Hopital pour Congolais	G	120
	Maternite	G	6
Mongbwalu	Hopital pour Europeens Kilo-Moto	P	6
	Hopital pour Congolais Kilo-Moto	P	n a
Kilo	Hopital pour Europeens Kilo-Moto	P	12
	Hopital pour Congolais Kilo-Moto	P	1,143
Lodjo	Hopital pour Congolais Kilo-Moto	P	n a
Nioka	Hopital pour Congolais INEAC	P	184
Nyamkunde	Hopital pour Europeens	Me	2
	Hopital pour Congolais	Me	53
Fataki	Hopital pour Europeens	Mn	6
	Hopital pour Congolais	Mn	135
	Maternite	Mn	22
	Lazaret	Mn	30
Rethy	Hopital	Me	52

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Aru	Hopital rural pour Congolais	G	115
	Maternite	G	10
	Section pour Europeens	G	2
Mambasa	Rural Hopital	G	52
	Maternite	G	n a
Bas-Uele District-			
Titule	Hopital pour Congolais	G	140
	Maternite	G	40
	Section pour Europeens	G	6
Bondo	Hopital pour Congolais	G	208
	Maternite	G	40
	Section pour Europeens	G	9
Bili	Hopital rural pour Congolais	G	50
	Maternite	G	20
	Leproserie	G	n a
Baye	Hopital rural pour Congolais	G	114
	Maternite	G	64
	Leproserie	G	n a
Ango	Hopital rural pour Congolais	G	130
	Maternite	G	20
Dakwa	Hopital rural pour Congolais	G	40
	Maternite	G	30
Poko	Hopital rural pour Congolais	G	139
Ganga	Centre Medico-Chirurgical	G	131
	Maternite	G	19
	Section pour Europeens	G	8

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Dingila	Hopital pour Congolais	P	130
	Maternite	P	25
Likati	Hopital rural pour Congolais	G	138
	Maternite	G	14
Aketi	Hopital pour Congolais	P	207
	Maternite	P	58
	Section pour Europeens	P	8
	Lazaret	P	30
Haut-Uele District-			
Paulis	Hopital pour Europeens	G	13
	Hopital pour Congolais	G	223
	Maternite	G	50
Medge	Hopital rural de la Croix Rouge	NPA	110
Dungu	Hopital rural	G	60
	Maternite	G	15
Aba	Centre Medico-Chirurgical	G	134
	Maternite	G	n a
	Section pour Europeens	G	8
Gombari	Rural Hopital	G	60
	Maternite	G	10
Watsa	Hopital pour Europeens Kilo-Moto	P	6
	Hopital pour Congolais Kilo-Moto	P	220
	Maternite	P	40

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Moto	Hopital pour Europeens	P	n a
	Hopital pour Congolais Kilo-Moto	P	n a
Tora	Hopital pour Congolais	P	220
	maternite	P	40
Wamba	Hopital rural pour Congolais	G	141
	maternite	G	44
	section pour Europeens	G	5
Bayenga	Tele Hopital et maternite	P	147
Pawa	Hopital Croix Rouge	P	190
	Hopital leproserie	P	150
Ibambi	Hopital Croix Rouge	P	81
	Maternite	P	30
Babonde	Hopital Croix Rouge	P	40
	maternite	P	25
KASAI PROVINCE			
Lulua District-			
Luluabourg	Hopital pour Europeens	G	19
	Hopital pour Congolais	G	475
	Maternite	G	81
	Centre Psychiatrique	G	n a
	BCK Hopital pour Congolais	P	79
	maternite	P	16
	Hopital	P	n a
Musefu	Hopital Forminiere	P	300

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Matamba	Lazaret pour tuberculeux	G	n a
	Hopital de Matamba	G	371
	Lazaret pour lepreux	G	112
Mikalayi	Hopital:		
	Europeens	Mn	8
	Congolais	Mn	160
	Lazaret pour sommeilleux	Mn	30
	Maternite	Mn	42
Demba	Hopital	Mn	51
	maternite	Mn	63
	section pour Europeens	Mn	2
Mutoto	Hopital des Congolais	Me	64
	maternite	Me	13
	section pour Europeens	Me	4
	leproserie	Me	350
Dibaya	Hopital pour Congolais	G	118
	Pavillon pour Europeens	Mn	2
	Hopital pour Congolais	Mn	93
	maternite	Mn	50
	lazaret pour tuberculeux	Mn	50
Tshimuanza	Pavillon pour Europeens	G	2
	Hopital pour Congolais	G	93
	maternite	G	50
	Lazaret pour tuberculeux	G	50
Tshikula	Pavillon pour Europeens	Mn	2
	Hopital pour Congolais	Mn	74
	maternite	Mn	29
	lazaret pour tuberculeux	Mn	20

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Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Lubondaie	Pavillon pour Europeens	Me	2
	Hopital pour Congolais	Me	60
	Maternite	Me	7
	Lazaret pour lepreux	Me	400
	Lazaret pour tuberculeux	Me	12
Luisa	Centre Medico-Chirurgical and maternite	G	118
Maswika	Hopital and maternite	Mn	30
Tshibala	Pavillon pour Europeens	G	4
	Centre Medico-Chirurgical and maternite	G	146
Ndekesha	Hopital and maternite	Mn	85
	maternite	Mn	35
Kasai District- Luebo	Hopital pour Europeens	G	6
	Hopital pour Congolais	G	195
	maternite	G	76
	Hopital de Luebo	G	n a
	Hopital	Me	50
	pavillon pour Europeens	Me	2
	maternite	Me	12
	leproserie	Me	200
	lazaret pour tuberculeux	Me	20
Port-Francqui	Hopital pour Europeens	G	4
	Hopital pour Congolais	G	101
	maternite	G	26
	BCK Hopital pour Congolais	P	11
	maternite	P	59

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Brabanta	Hopital pour Europeens	P	6
	Hopital pour Congolais	P	115
	maternite	P	12
Mwenka	BCK Hopital pour Congolais	P	160
	maternite	P	30
Mushenge	Centre Medico-Chirurgical (under construction)	G	n a
Tshikapa	Hopital pour Europeens	P	6
	Hopital pour Congolais	P	400
	maternite	P	n a
Kabelekese	Hopital pour Congolais	P	n a
Lubami	Hopital pour Congolais	P	n a
Charlesville	Hopital	Me	18
	maternite	Me	15
Bulape	Pavillon pour Europeens	Me	2
	Hopital pour Congolais	Me	83
	Maternite	Me	33
	Lazaret pour lepreux	Me	80
	Lazaret pour tuberculeux	Me	25
Dekese	Hopital pour Congolais and maternite	G	120
Kamonia	Hopital pour Congolais	Mn	150
	and maternite	Mn	25
	village pour lepreux	Mn	n a
Katangwa	Hopital pour Congolais	Mn	75
	and maternite	Mn	40

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Kabinda District-			
Kabinda	Hopital pour Europeens	G	8
	Hopital pour Congolais	G	100
	and maternite	G	15
Kalenda	Hopital-Europeens Fomulac	P	7
	Hopital pour Congolais and maternite	P	200
	Lazaret pour tuberculeux	P	24
	Lazaret pour tuberculeux	G	30
Bakwanga	Hopital pour Europeens	P	6
	Hopital pour Congolais (Forminiere)	P	400
Miabi	Hopital pour Congolais	P	150
Sentery	Centre Medico-Chirurgical and maternite	G	150
Tshofa	Hopital pour Congolais	G	80
	maternite	G	25
	Leproserie	G	50
Katanda	Hopital	G	116
Bibanga	Pavillon pour Europeens	Me	2
	Hopital pour Congolais	Me	44
	Maternite	Me	12
	Lazaret pour Lepreux	Me	224
Gandajika	Centre Medico-Chirurgical (under construction)	G	n a
Tubeya	Hopital and	Mn	48
	maternite	Mn	80

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Sankuru District-			
Lusambo	Hopital pour Europeens	G	6
	Hopital pour Congolais	G	108
	maternite	G	24
	lazaret pour tuberculeux	G	80
Lodja	Hopital pour Europeens	G	4
	Hopital pour Congolais	G	150
	Maternite and polyclinic	G	35
Dimbelenge	Hopital	G	47
Kole	Centre Medico-Chirurgical and maternite	G	156
Lomela	Hopital	P	85
	Maternite	P	11
Loto	Leproserie	Me	103
Tshumbe St. Marie	Hopital	Mn	72
	Maternite	Mn	21
	Lazaret pour Tuberculeux	Mn	25
	Lazaret pour sommeilleux	Mn	16
Minga	Pavillon pour Europeens	Me	2
	Hopital pour Congolais	Me	30
	Maternite	Me	23
	Lazaret pour lepreux	Mn	270
	Lazaret pour tuberculeux	Mn	27
Katako-Kombe	Hopital	Mn	45
	Maternite	Mn	22

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Wembo-Nyama	Pavillon pour Europeens	Me	2
	Hopital pour Congolais	Me	55
	Maternite	Me	20
KATANGA PROVINCE			
Haut-Katanga District-			
Elisabethville	Hopital pour Europeens	G	120
	Hopital pour Congolais	G	n a
	Government Hopital	G	625
	Hopital-maternite UMHK	P	182
	Hopital BCK	P	118
Kipushi	Hopital pour Congolais-maternite	P	199
Kasenga	Hopital (under construction)	G	n a
	Hopital pour Europeens	P	5
	and Congolais	P	250
Tshibambo	Hopital and leproserie	Me	40
Sakania	Hopital pour Europeens	G	5
	Hopital pour Congolais	G	77
Tshiamfubu	Hopital pour Europeens	G	2
	Hopital pour Congolais	G	50
	Leproserie	G	300
Tanganyika District-			
Albertville	Hopital pour Europeens	G	44
	Hopital pour Congolais	G	200
	Hopital	P	40
Ankoro	Rural Hopital-maternite	G	50
Baudouinville	Hopital and maternite	G	114

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Kabalo	Hopital pour Congolais	G	60
	Centre Medico-Chirurgical (under construction)	G	n a
Manoho	Hopital Geomines pour Europeens	P	8
	Hopital Geomines pour Congolais and maternite	P	154
Kamina	Hopital pour Europeens BCK	P	38
	Hopital pour Congolais BCK	P	112
Kongolo	Hopital Colonie pour Europeens	P	6
	Hopital pour Congolais	G	144
Fungurune-Kambove	Hopital pour Congolais	P	28
Luena	Hopital pour Congolais	P	190
Lualaba District-Jadotville	Hopital pour Europeens UMHK	P	36
	Hopital pour Europeens BCK	P	n a
	Hopital pour Congolais	G	143
	Hopital UMHK	P	279
	Hopital BCK	P	138
Kolwezi	Hopital pour Europeens UMHK	P	40
	Hopital pour Congolais UMHK	P	284
Kambove	Hopital UMHK	P	n a
Mitwaba	Hopital	P	110
Mutshatsha	Hopital pour Congolais BCK	P	40
Shinkolobwe	Hopital pour Congolais UMHK	P	92

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Nzilo	Hopital pour Congolais UMHK	P	105
Nyunzu	Hopital pour Congolais	G	18
Dilolo	Rural Hopital	G	130
	Pavillon pour Europeens	G	3
Kasaji	Hopital pour Europeens	Me	36
	Hopital pour Congolais	Me	36
	and leproserie	Me	n a
Lubudi	Hopital-Europeens BCK	P	5
	Hopital-Europeens Cimenkat	P	10
	Hopital-Congolais BCK	P	45
	Hopital-Congolais Cimenkat	P	75
Haut Lomami District-			
Mwilambwe	Hopital and maternite	Me	21
	Leproserie	Me	290
Kabongo	Rural Hopital	G	60
Malemba-Nkulu	Hopital	Mn	180
Mulongo	Hopital	Me	127
	Leproserie	Me	195
Bukama	Rural Hopital-maternite	G	60
	Leproserie	Mn	138
Sandoa	Hopital pour Europeens	G	2
	Hopital pour Congolais and maternite	G	110

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Kapanga	Hopital pour Congolais and maternite	Me	150
	Leproserie	Me	472
Kaniama	Hopital pour Congolais	G	28
KIVU PROVINCE			
Nord-Kivu District-			
Goma	Pavillon pour Europeens	G	16
	Centre Medico-Chirurgical (not completed)	G	40
Butembo	Hopital pour Europeens	P	2
	Hopital pour Congolais	P	107
Kabunga	Hopital pour Europeens	P	2
	Hopital pour Congolais	P	279
Musienene	Hopital pour Congolais	Mn	300
Utu	Hopital pour Congolais	P	68
Katwa	Hopital pour Europeens	Me	4
	Hopital pour Congolais	Me	47
	Leproserie	Me	n a
	Lazaret pour tuberculeux	Me	90
Ruanguba	Hopital pour Europeens	Me	4
	Hopital pour Congolais	Me	58
Beni	Hopital pour Europeens	G	4
	Hopital pour Congolais	G	67
Kiavaranga	Leproserie	G	n a
Kiavirumu	Leproserie	G	n a

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Oicha	Hopital pour Europeens	Me	6
	Hopital pour Congolais	Me	283
	Leproserie	Me	682
	Lazaret pour tuberculeux	Me	58
Lubero	Hopital pour Europeens and maternite	G	5
	Hopital pour Congolais	G	109
Mohange	Leproserie	G	n a
Luofo	Leproserie	G	n a
Ruthshuru	Centre Medico-Chirurgical	G	n a
Tshengerero	Leproserie	G	n a
Masisi	Rural Hopital	G	62
	Centre Medico-Chirurgical	G	163
Sud-Kivu District-			
Kindu	Hopital pour Europeens	P	15
	Hopital Colonie-Congolais	P	126
Bukavu	Hopital pour Europeens	G	36
	Hopital pour Congolais	G	515
Kamituga	Hopital pour Europeens	P	10
	Hopital pour Congolais	P	240
Mwana	Hopital pour Congolais	P	122
Lulingo	Hopital pour Europeens	P	2
	Hopital pour Congolais	P	236

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Katana	Hopital pour Europeens	P	20
	Hopital pour Congolais (FORMULAC)	P	336
Kigulube	Hopital pour Congolais	P	75
Walungu	Hopital pour Congolais	P	125
Mwenga	Centre Medico-Chirurgical	G	130
Kagelagela	Leproserie	G	92
Uvira	Centre Medico-Chirurgical	G	193
Fizi	Centre Medico-Chirurgical	G	96
Buzimba	Leproserie	G	2
Tipoyo	Leproserie	G	2
Shabunda	Centre Medico-Chirurgical (CEMUBAC)	P	157
	Sanitorium (CEMUBAC)	P	n a
Masanga	Leproserie	G	n a
Makozi	Leproserie	G	n a
Maniema District-			
Kalima	Hopital pour Europeens	P	7
	Hopital pour Congolais	P	552
Punia	Hopital pour Europeens	P	4
	Hopital pour Congolais	P	167

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Kampene	Hopital pour Europeens	P	4
	Hopital pour Congolais	P	194
Kima	Hopital pour Europeens	P	4
	Hopital pour Congolais	P	180
Kibeleketa	Hopital pour Europeens	P	2
	Hopital pour Congolais	P	105
Tunda	Hopital pour Europeens	Me	9
	Leproserie	Me	n a
Kasese (Nduma)	Hopital pour Congolais	P	150
Kailo	Hopital pour Congolais	P	170
Moga	Hopital pour Congolais	P	150
Saulia	Hopital pour Congolais	P	76
Namoya	Hopital pour Congolais	P	41
Kibombo	Hopital pour Congolais FBI	P	108
Kasongo	Hopital pour Congolais FBI	P	200
	Pavillon pour Europeens	G	4
	Leproserie	G	n a
Lubutu	Pavillon pour Europeens	G	3
	Hopital rural	G	100
	Leproserie	G	n a
Lokandu	Centre Medico-Chirurgical	G	276
Luama	Leproserie	G	n a

Governmental and non-governmental hospitals and other medical establishments in the Belgian Congo, January 1, 1956 - continued

Location	Type of institution	Auspices	No. of beds
Risasi	Leproserie	G	20
Kailo	Hopital	P	154
Pangi	Rural hopital pour Congolais	G	92
Kama	Leproserie	G	n a
Lusangi	Centre Medico-Chirurgical	G	96

1/ Based on Source 82.
2/ n a Information not available.
3/ * Major city of territory of the same name.

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